VOL. XXXIX No. 12 DECEMBER 1954

MECCANO MAGAZINE

THE JOYS OF CHRISTMAS

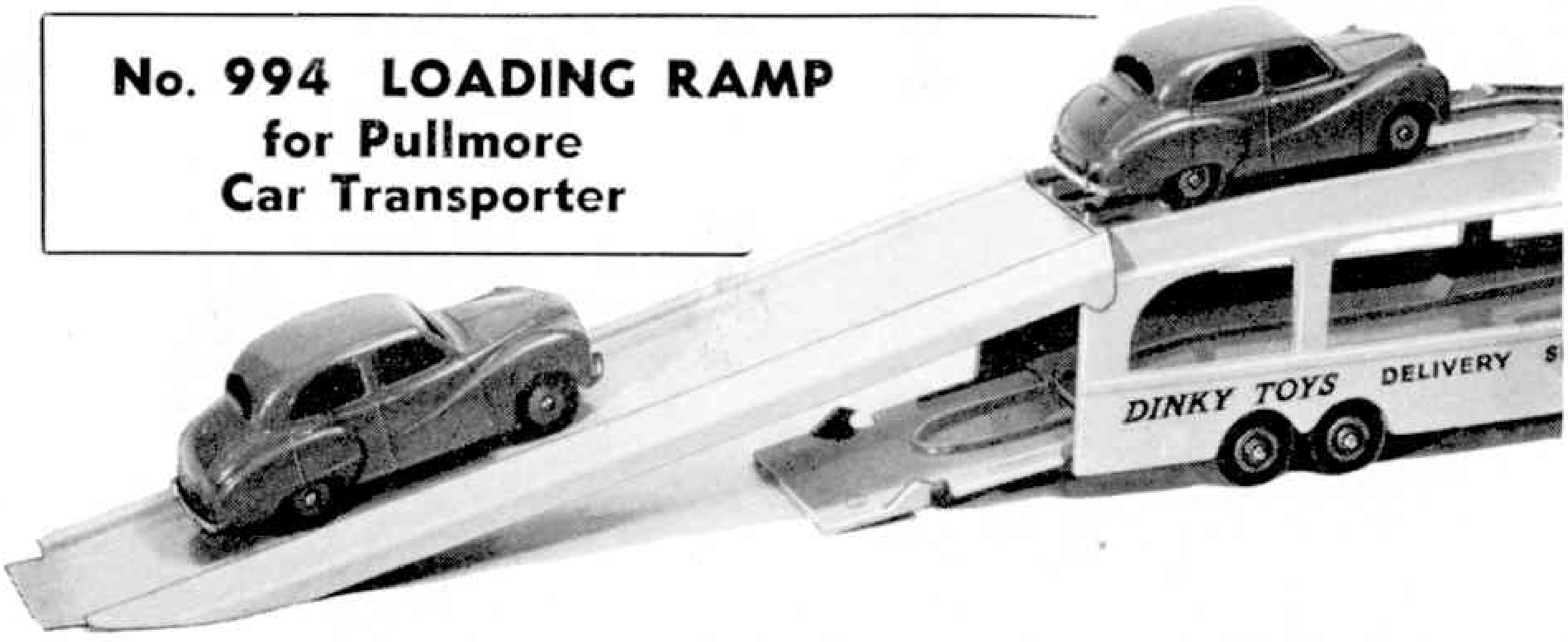
1/-

DINKY TOYS

TRADE MARK REGD.

NEW **....now available**

No. 994 LOADING RAMP for Pullmore Car Transporter



Loading of the upper deck of the Pullmore Car Transporter (Dinky Toys No. 982) is made possible by this Ramp, as shown in the illustration. The Ramp is 9 in. long and the colour is light blue to match the Car Transporter. Every owner of a Pullmore Car Transporter will want this Ramp.

PRICE **1/6** (including Tax)

IMPORTANT

The growing popularity of Dinky Toys often results in dealers being short of supplies. Output has been increasing continuously in an effort to keep up with the demand.

★ *Have you had your copy of the new Dinky Toys booklet? Ask your local dealer for the new 24-page booklet which illustrates the full range of Dinky Toys in colour. If you prefer, you may obtain it direct from Meccano Ltd.*

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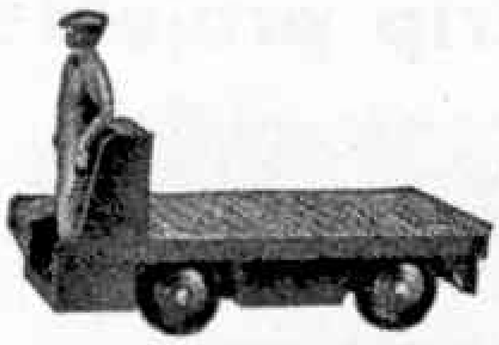

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Wing Span $7\frac{1}{16}$ in. **7/3**

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Austin Champ Army Vehicle with Driver
Length $2\frac{5}{8}$ in. **3/6**

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Bedford 10 cwt. Van "Kodak"
Length $3\frac{1}{4}$ in. **2/9**

No. 157
Jaguar XK120 Coupé
Length $3\frac{7}{16}$ in. **2/8**

No. 492
Loud Speaker Van
Length $3\frac{1}{16}$ in. **2/3**

No. 158
Riley Saloon
Length $3\frac{1}{2}$ in. **2/2**

No. 156
Rover 75 Saloon
Length 4 in. **2/5**

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Tanker Castrol
Length $4\frac{3}{4}$ in. **2/8**

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Army 1-Ton Cargo Truck with Driver
Length $3\frac{1}{16}$ in. **3/9**

No. 621
3-Ton Army Wagon with Driver
Length $4\frac{3}{8}$ in. **5/3**

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Standard Vanguard Saloon
Length $3\frac{1}{2}$ in. **2/2**

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Austin Somerset Saloon
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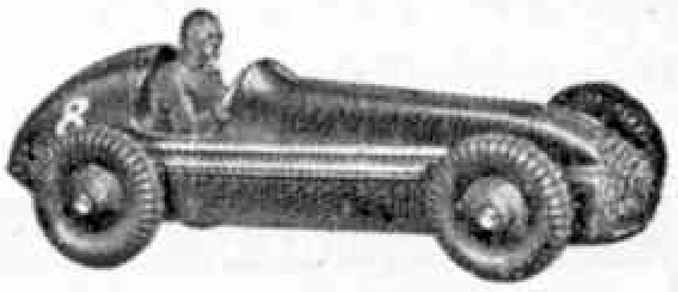
No. 452
Trojan Van, 15 cwt.
Length $3\frac{3}{8}$ in. **2/6**

Prices include Purchase Tax



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Length 4 in. **2/6**

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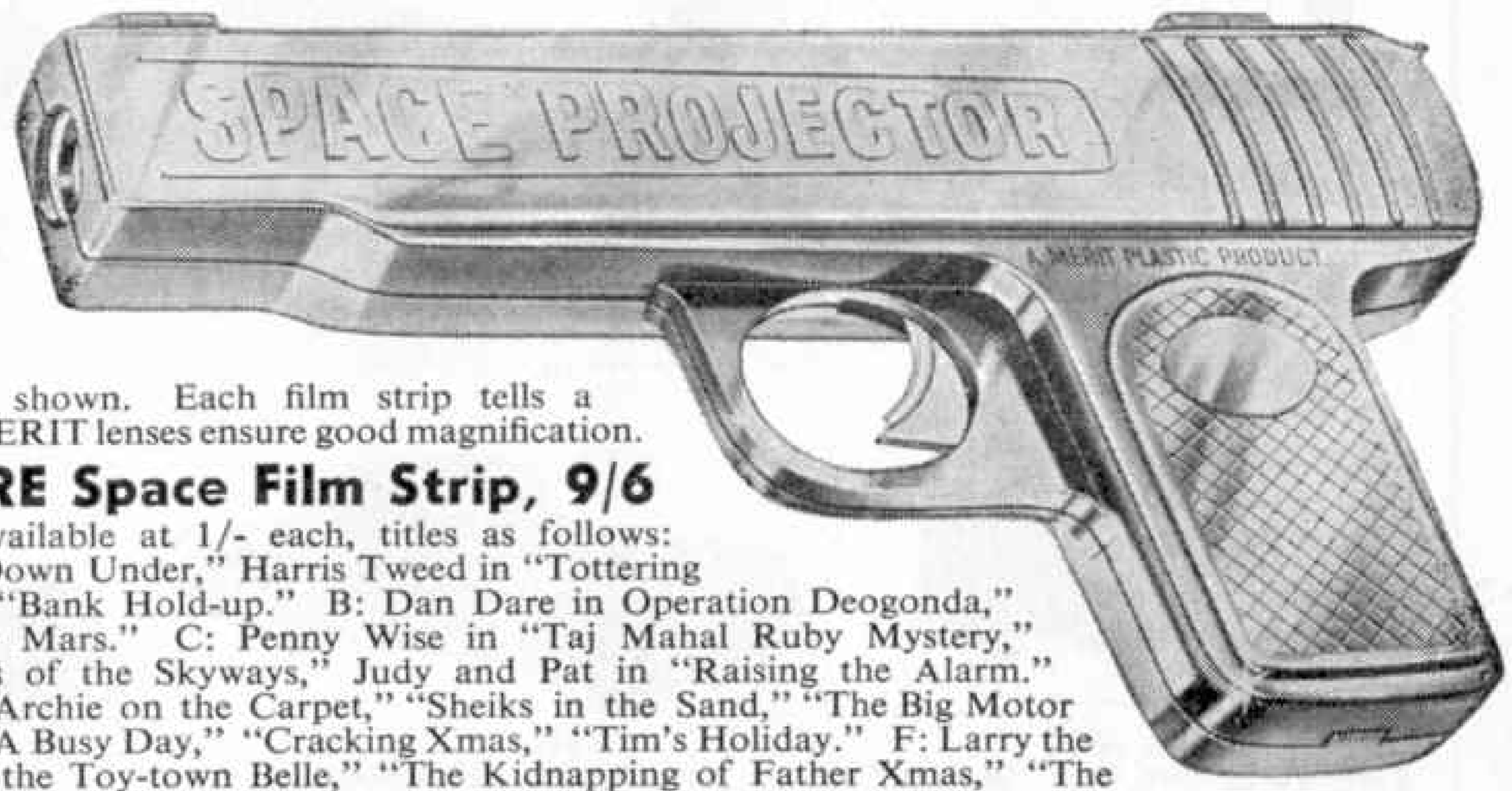

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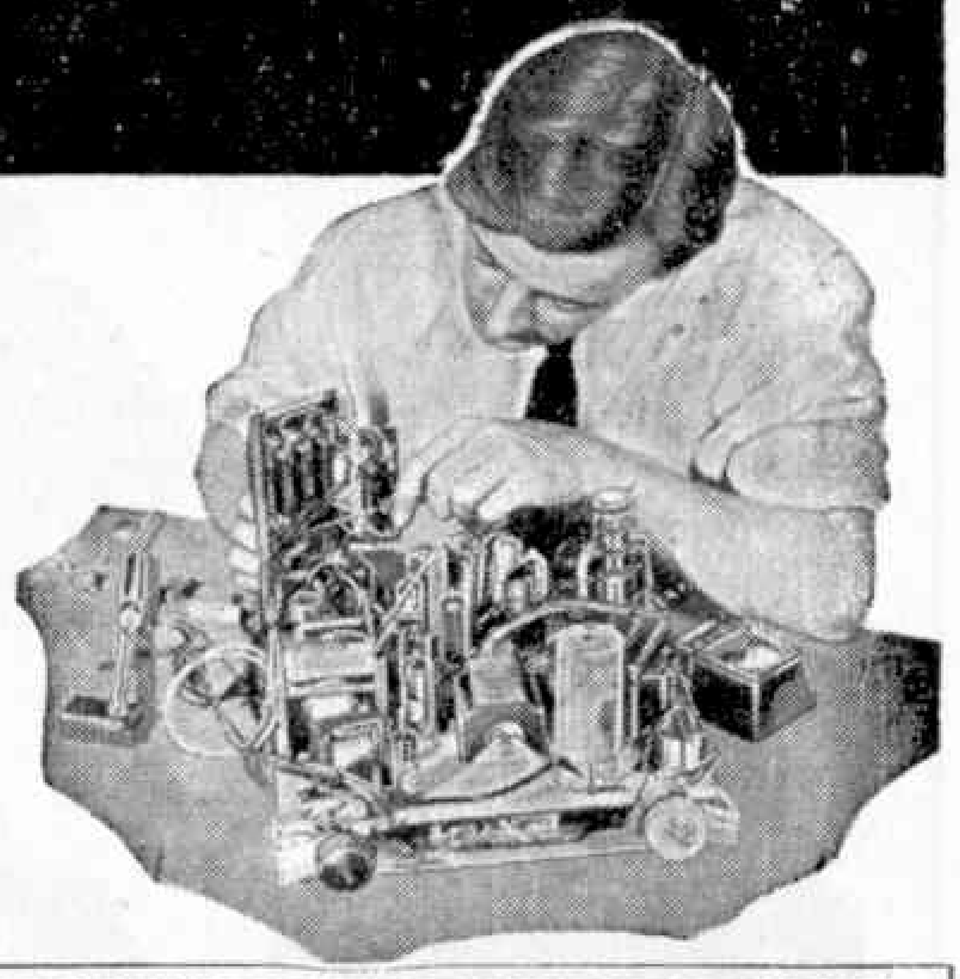

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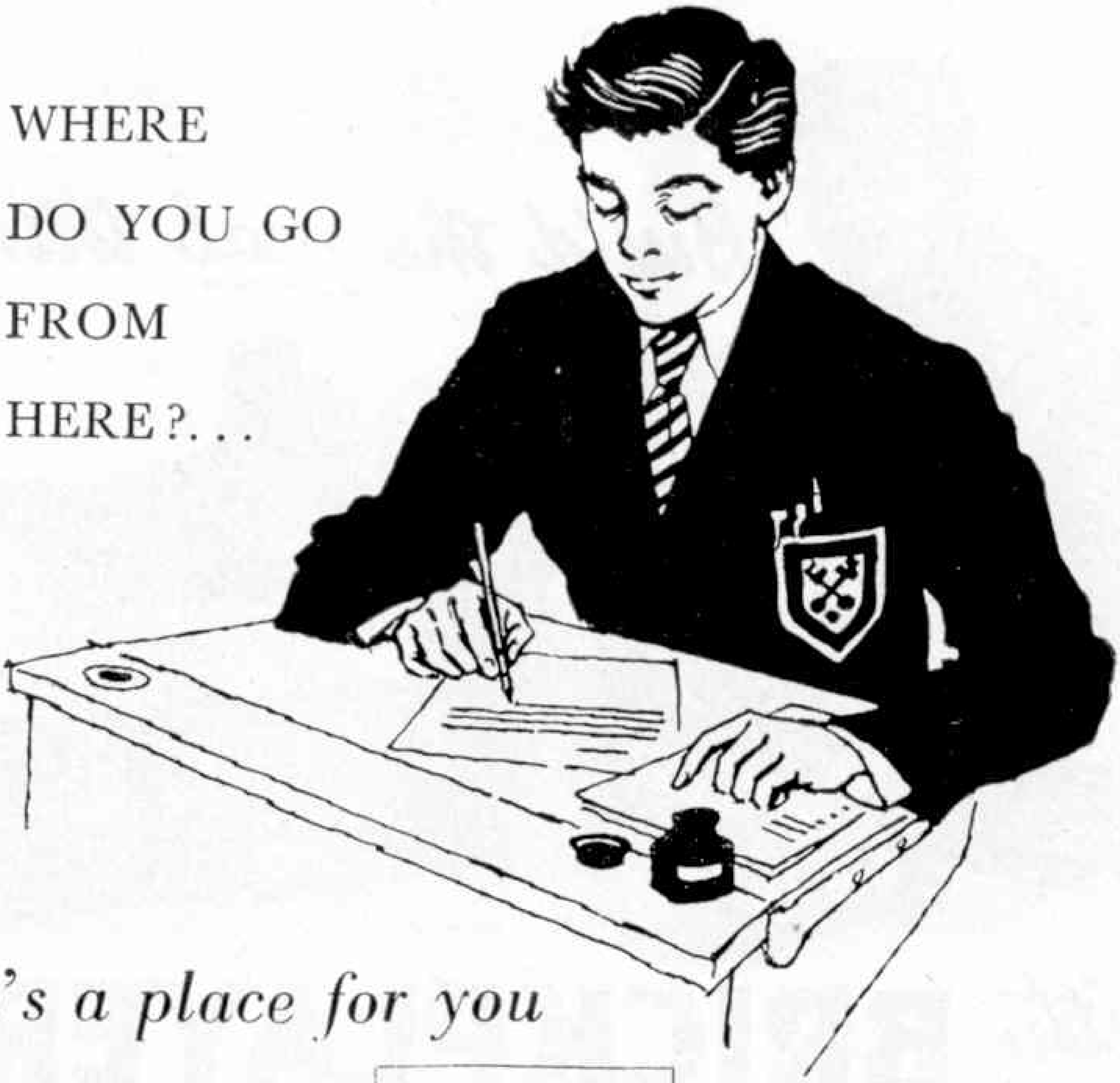

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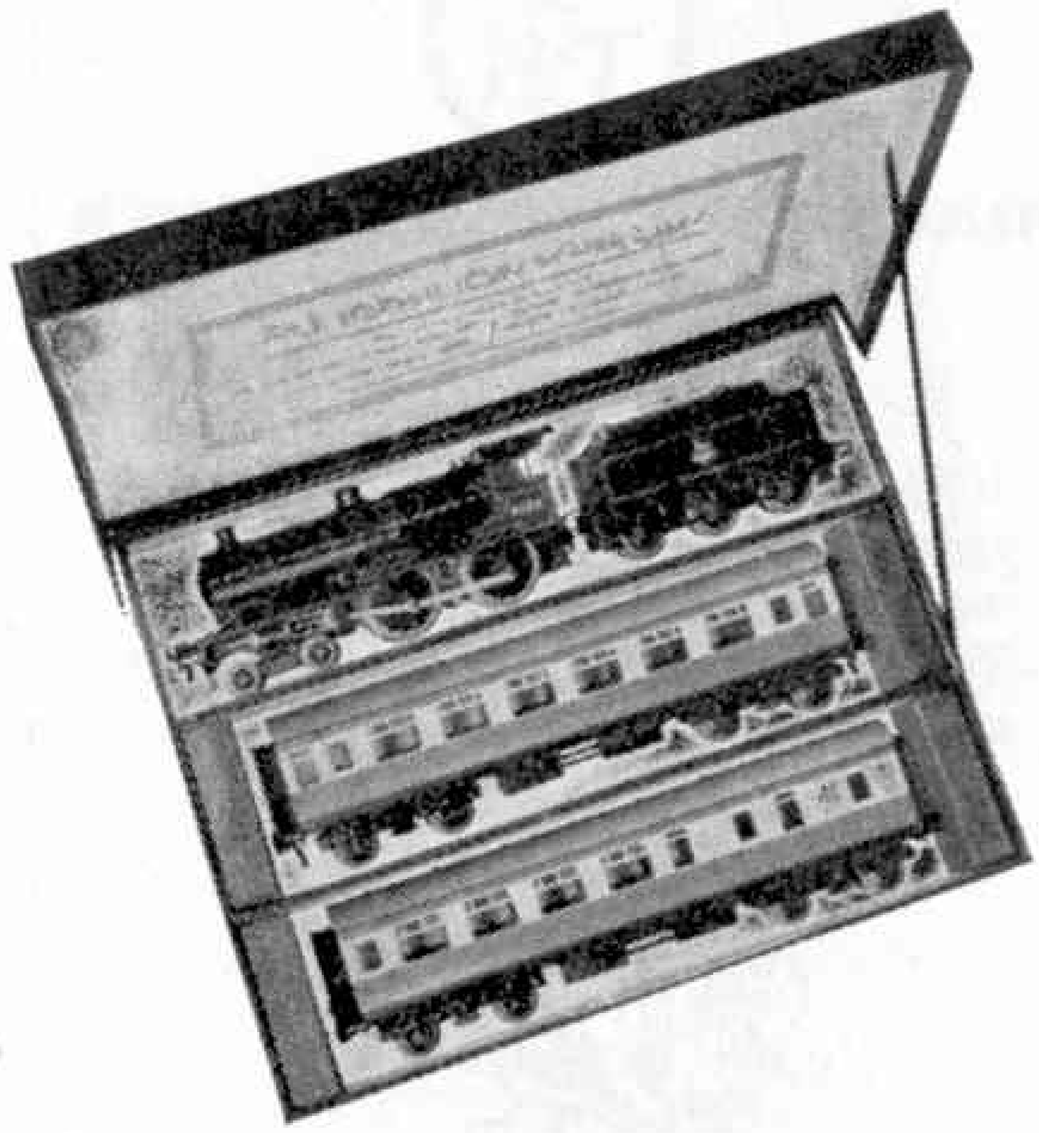

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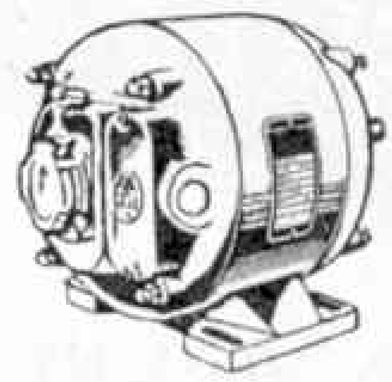

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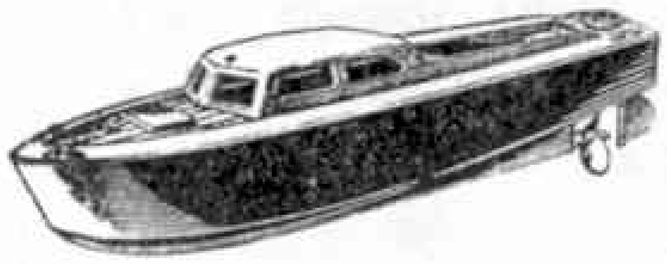

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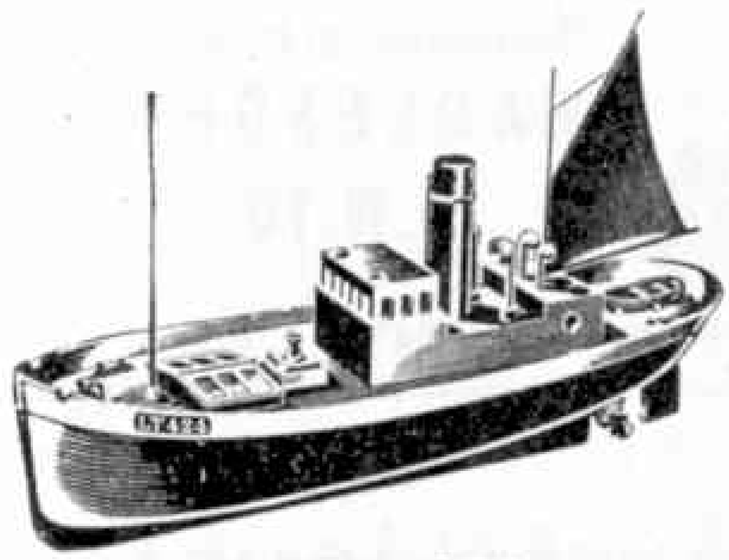

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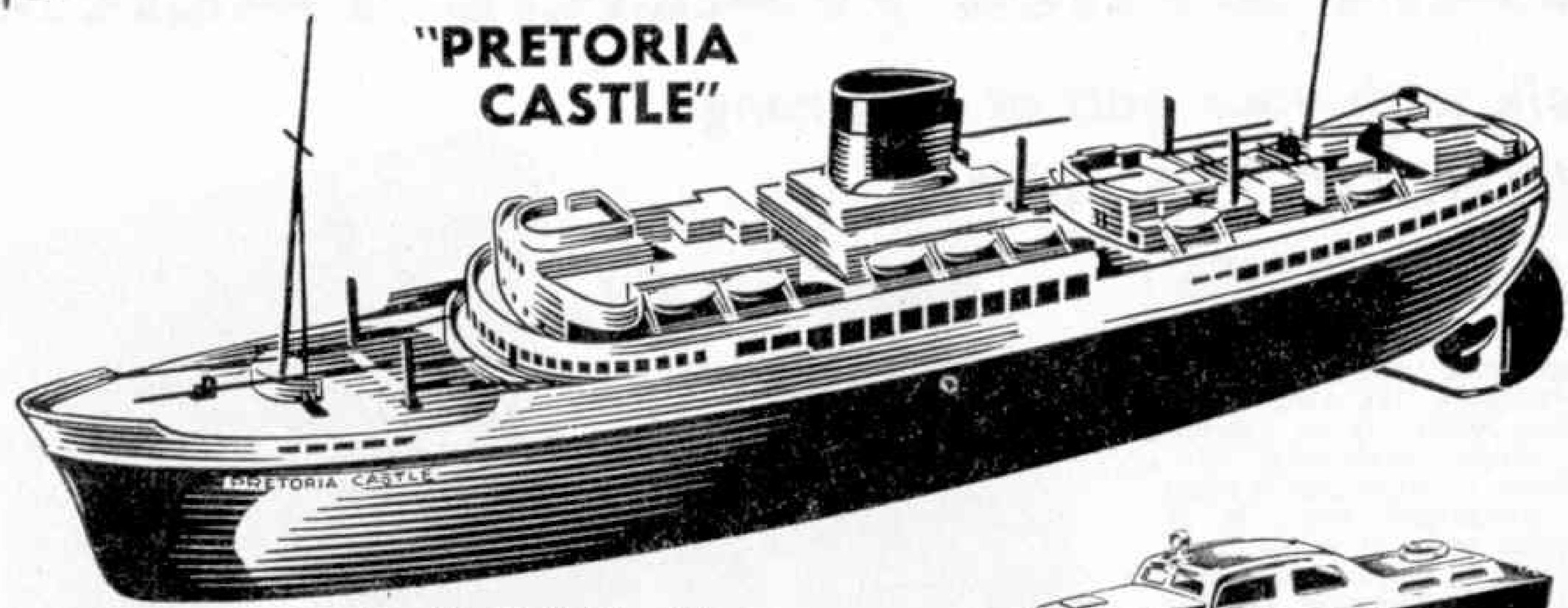

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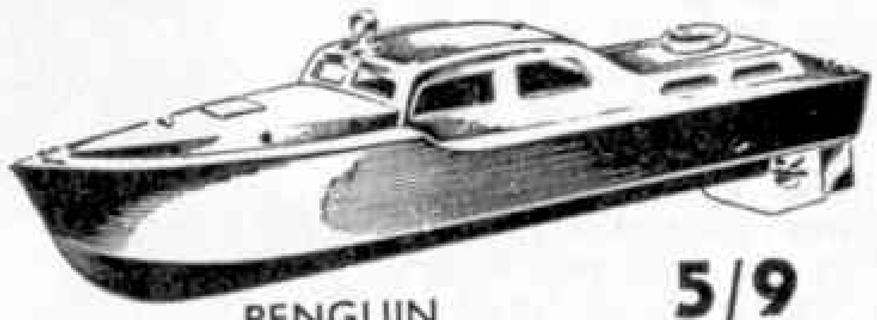

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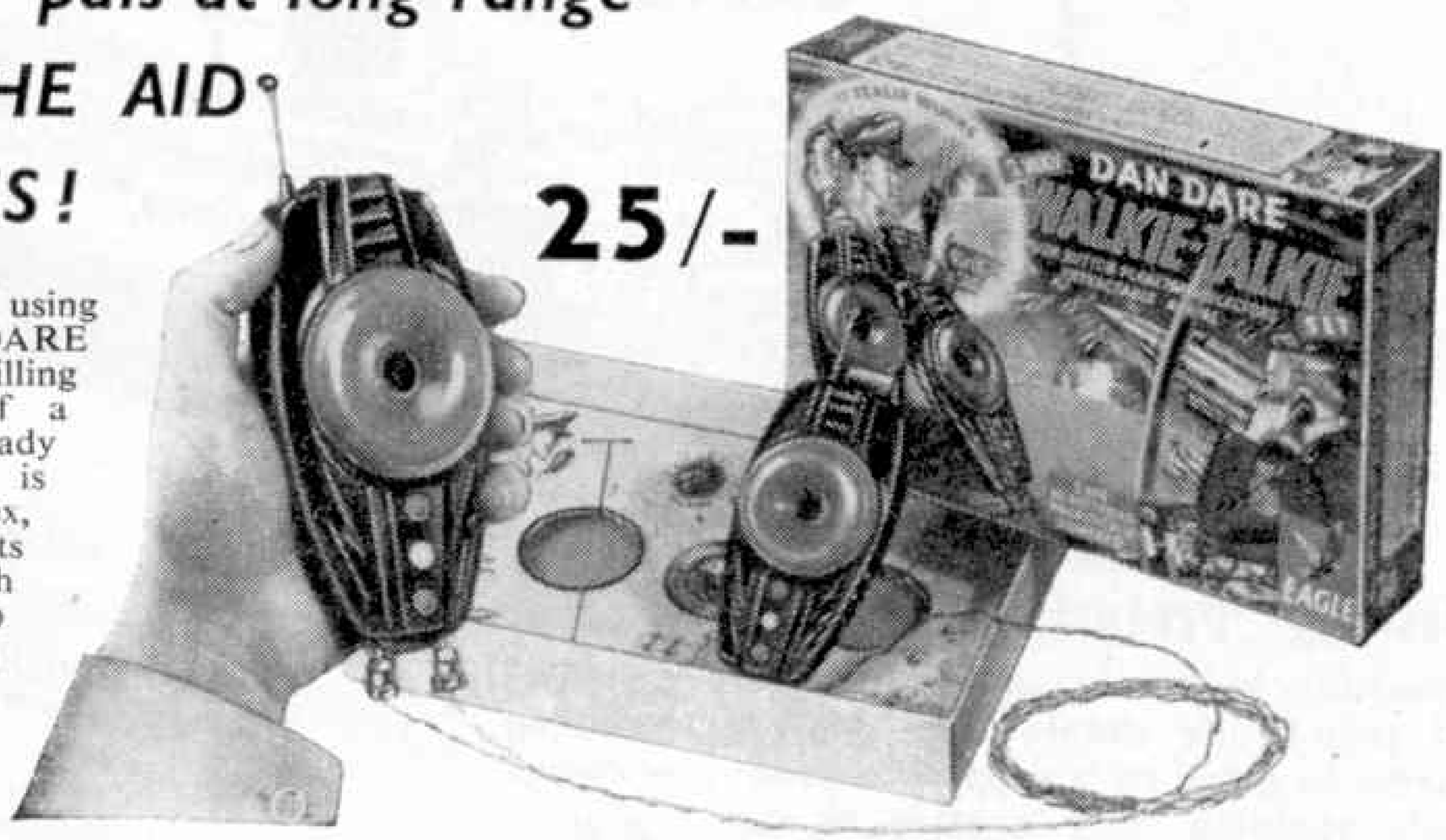

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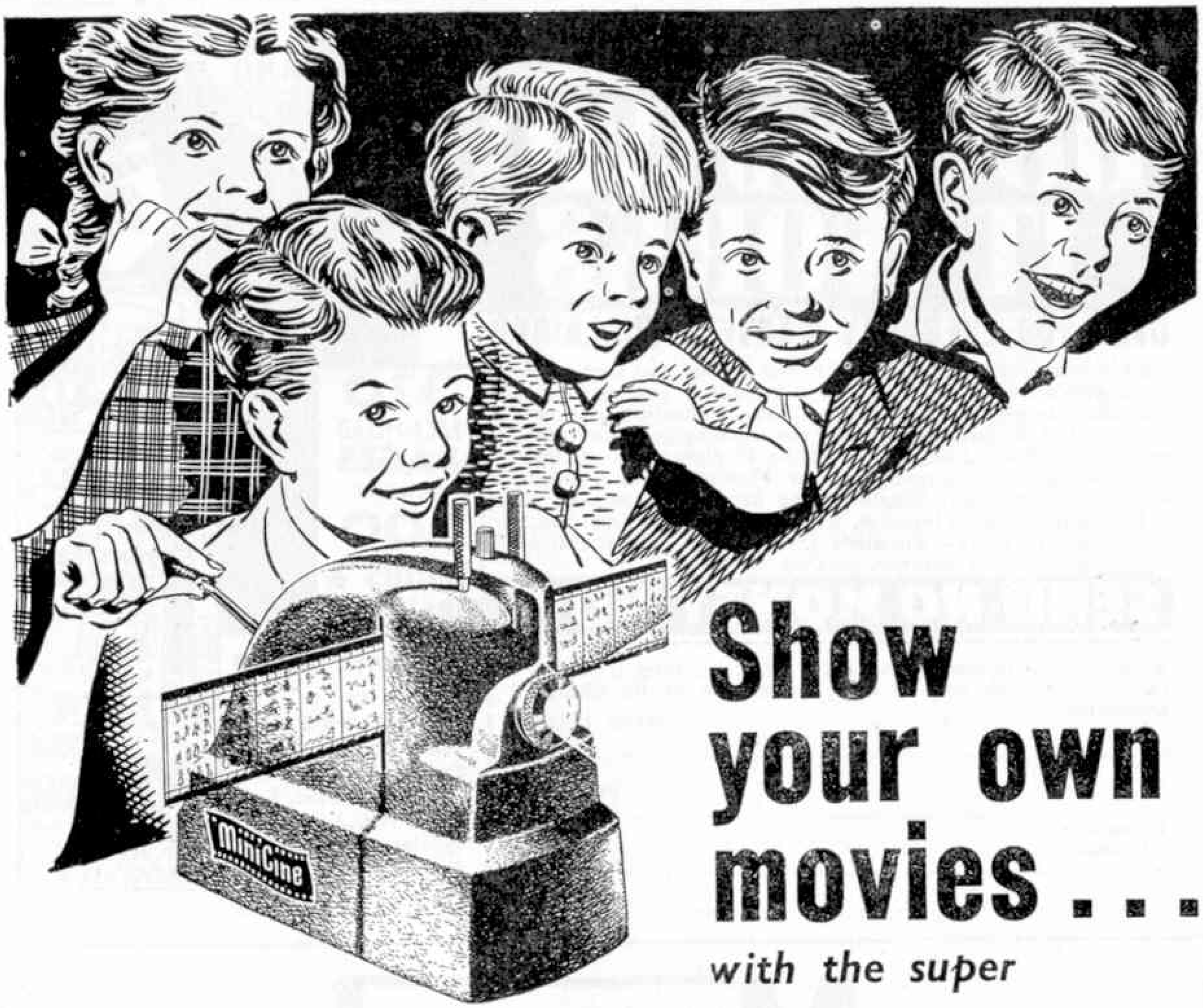

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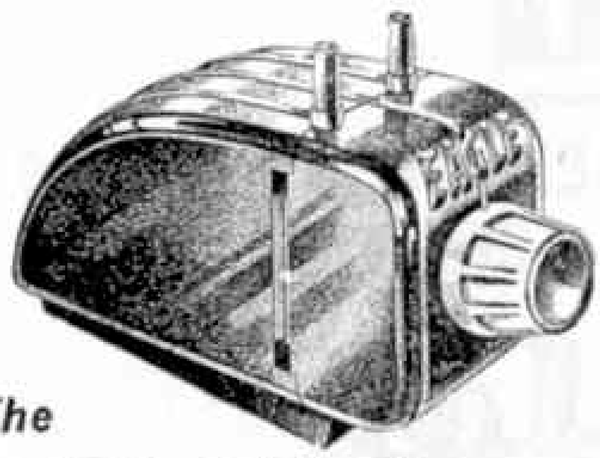

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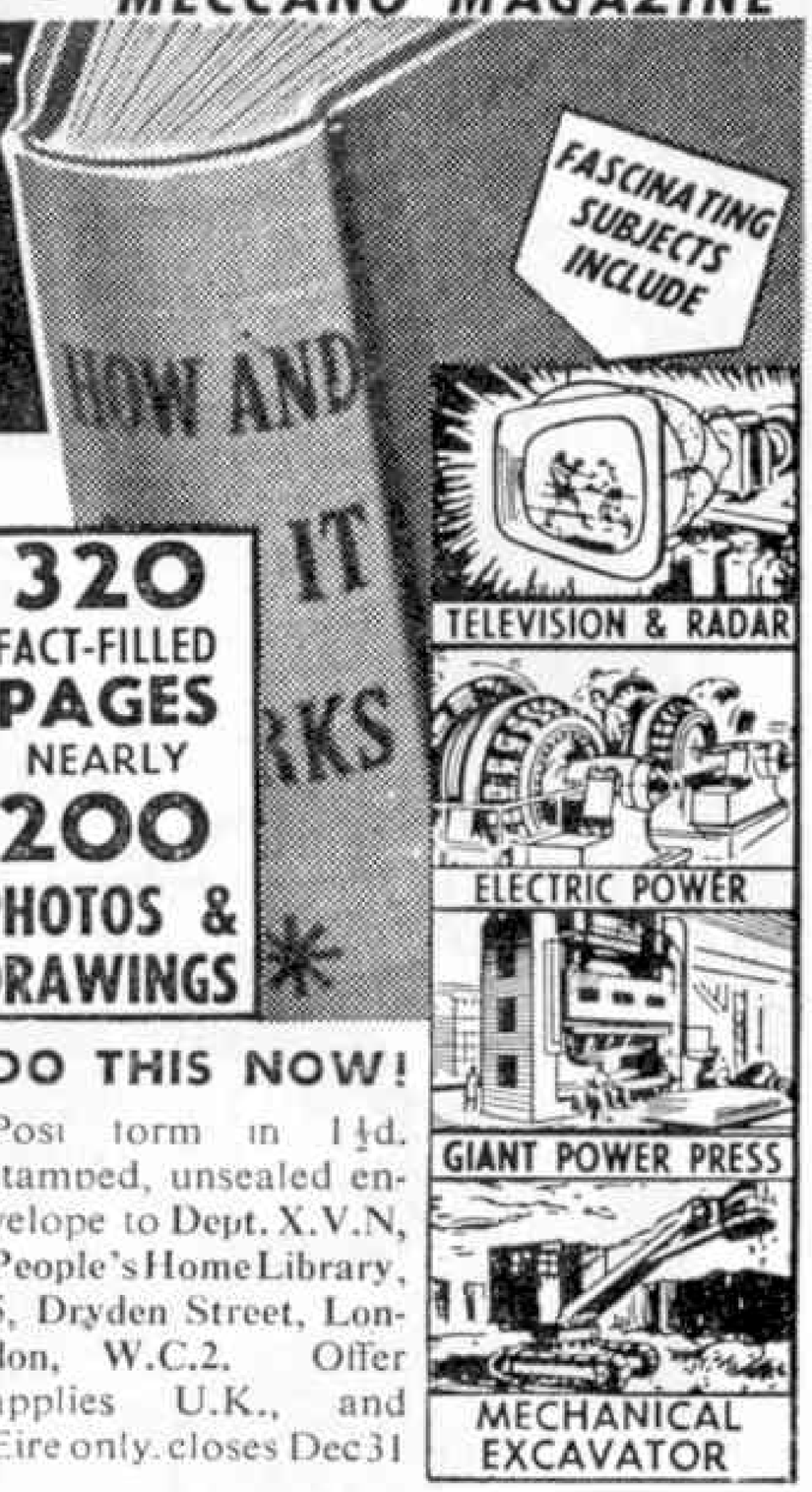

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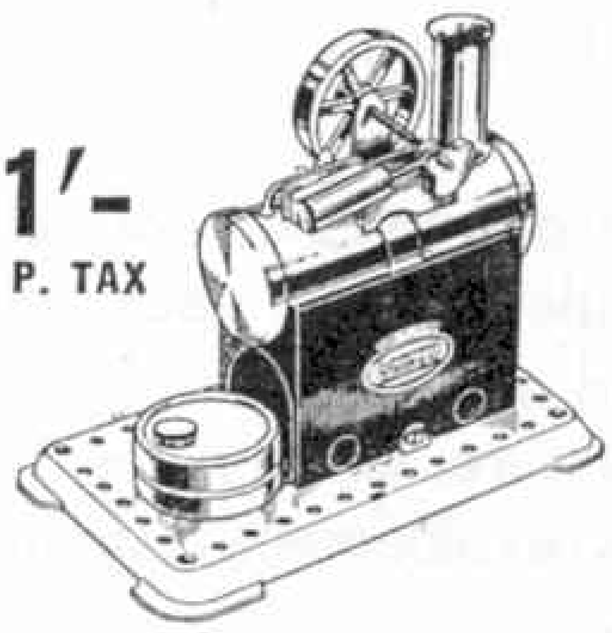

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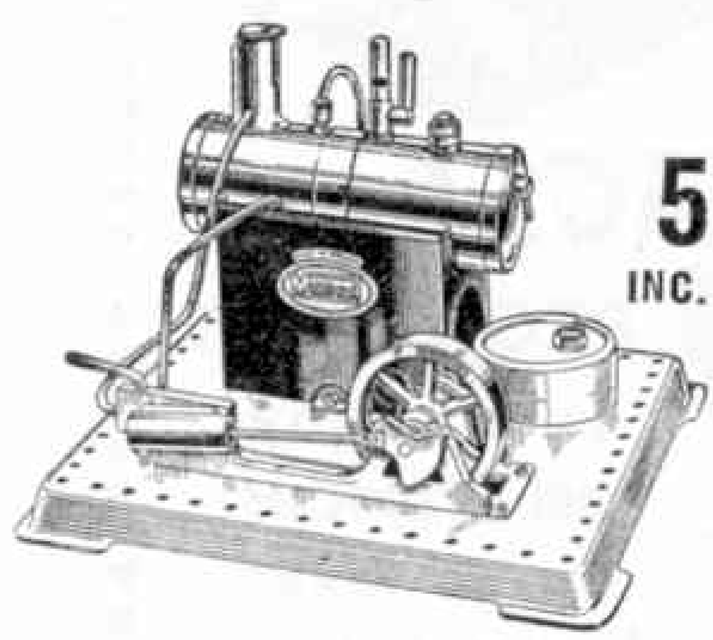

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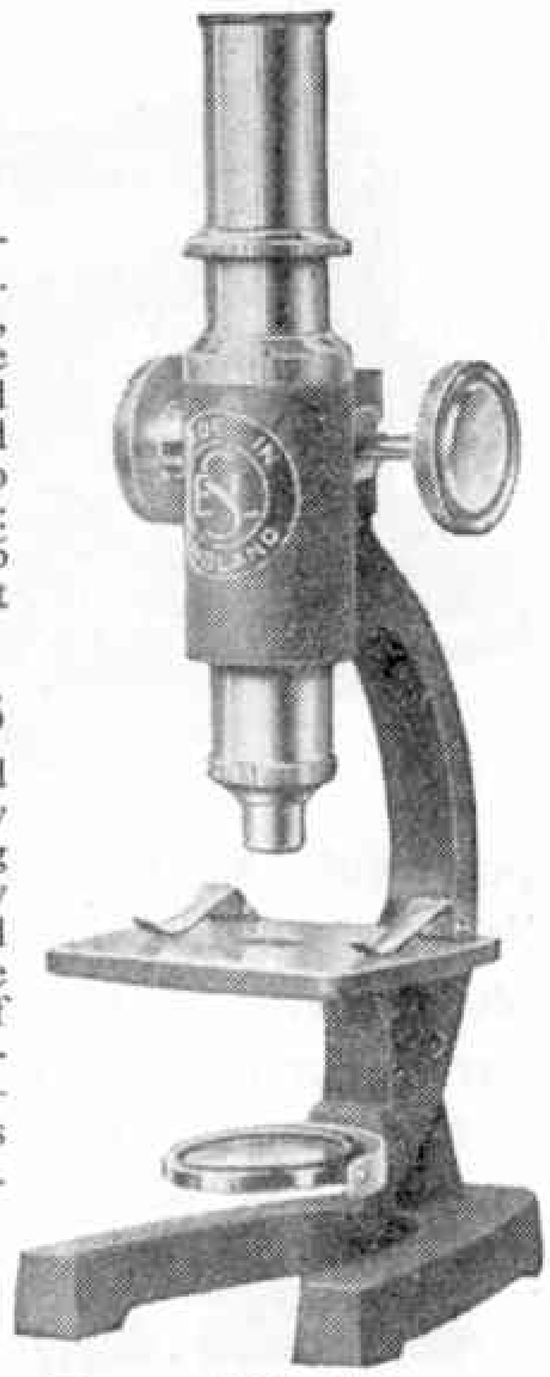

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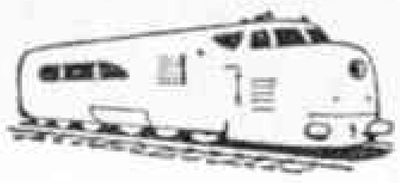

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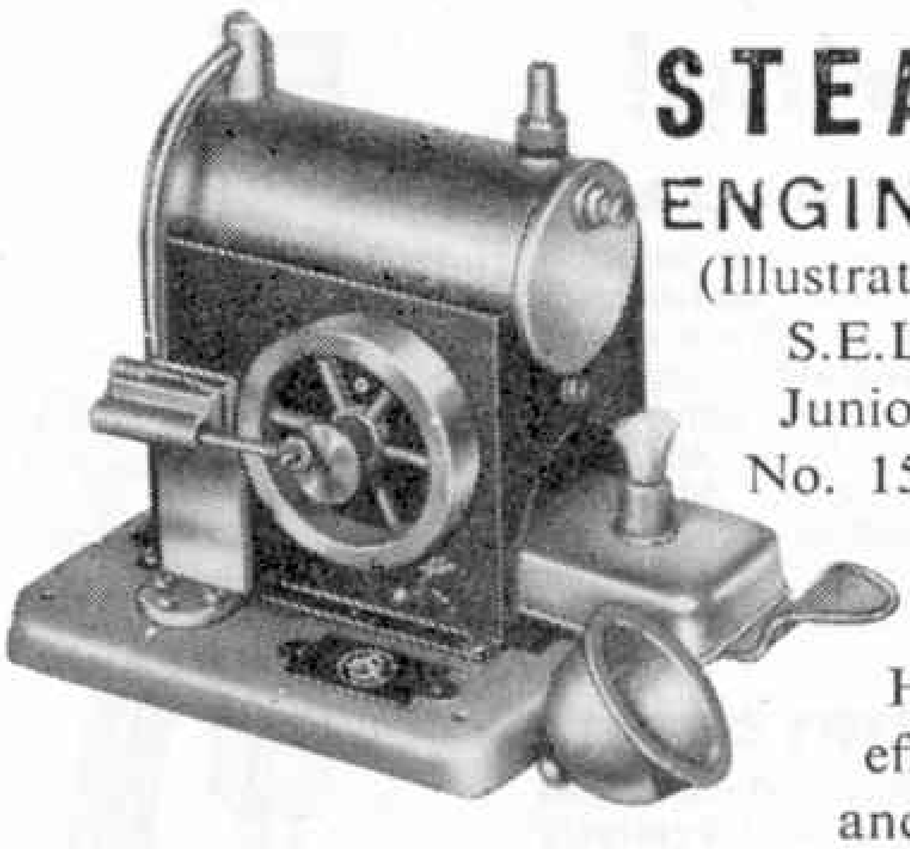

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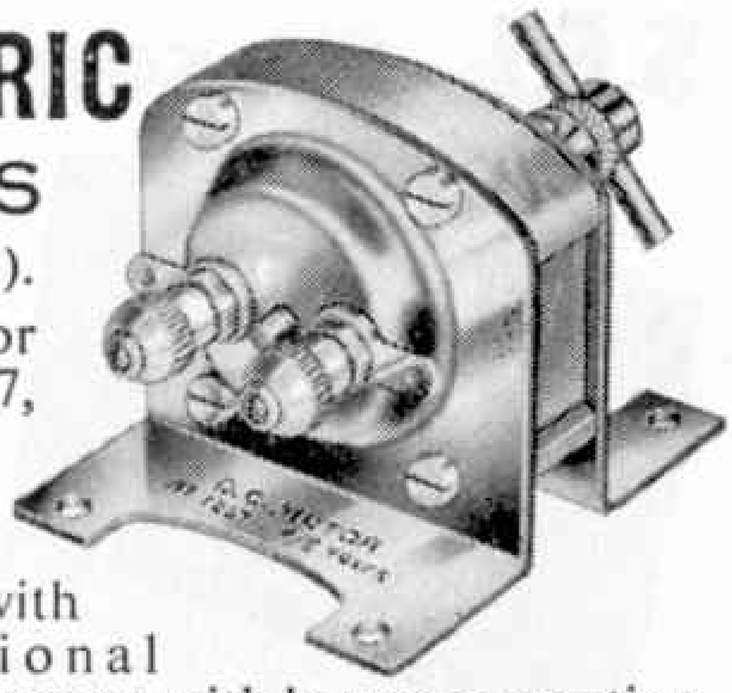

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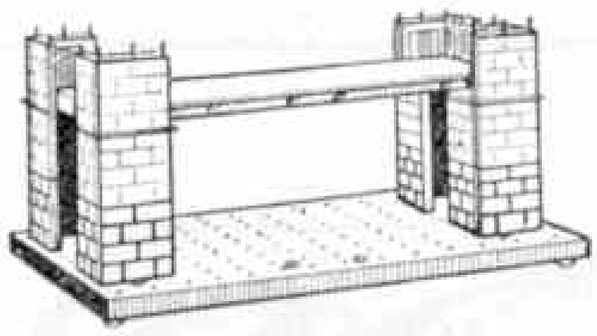

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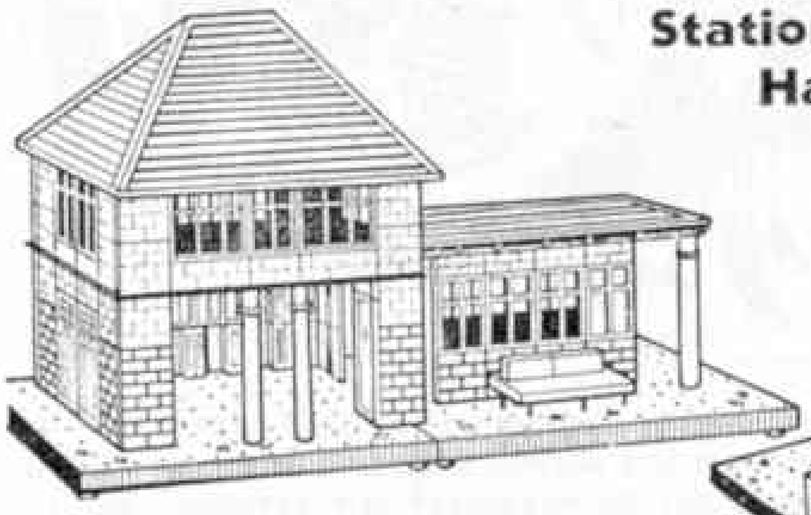

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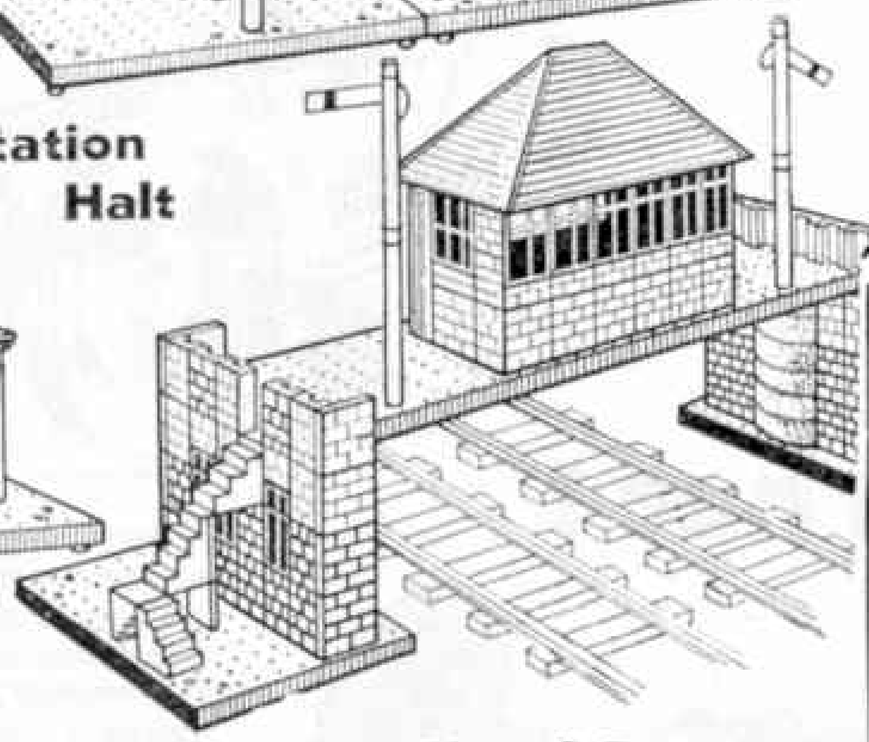

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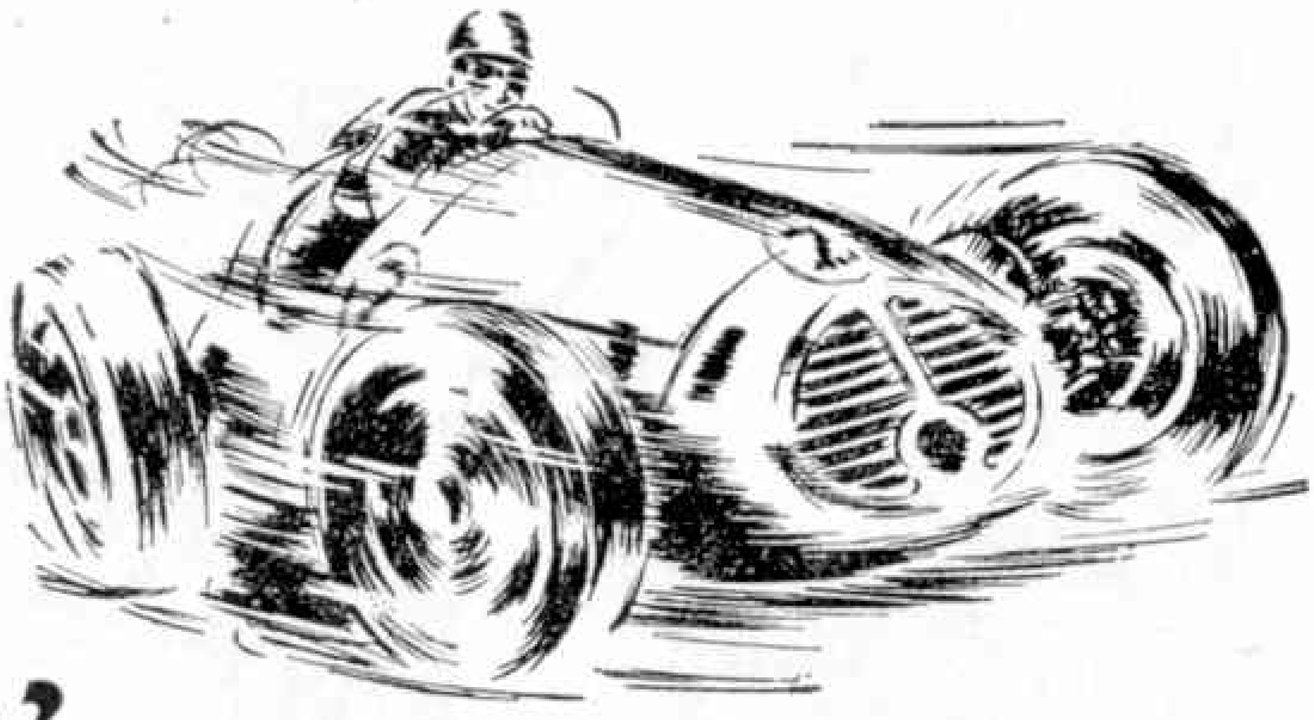

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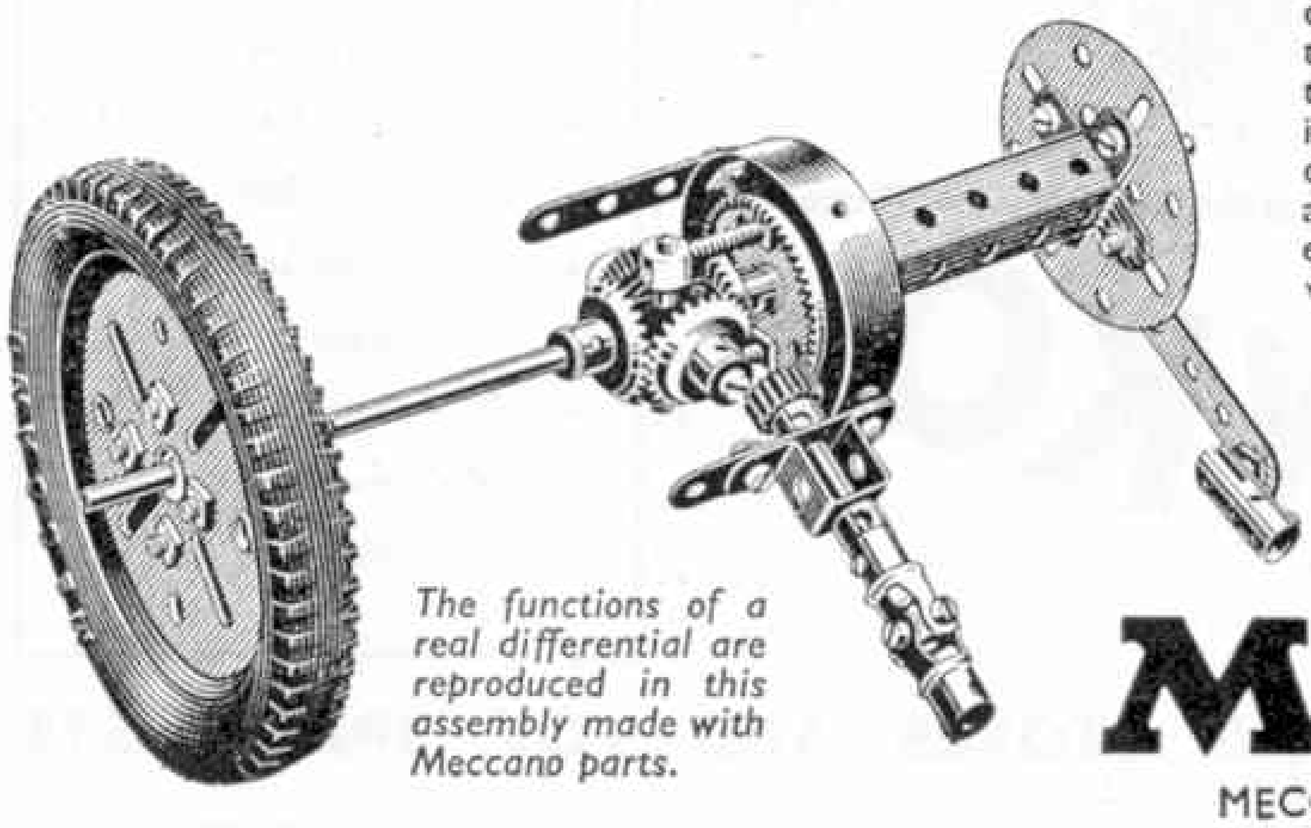

The functions of a real differential are reproduced in this assembly made with Meccano parts.

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EDITOR : FRANK RILEY, B.Sc.

Vol. XXXIX
No. 12
December 1954

A Merry Christmas!

MY picture this month is a reminder that we are approaching the Christmas season. I do not suppose that any of you really need this reminder, as you will already have seen plenty of the usual signs. The thrill of preparations; the buying of presents, which is *almost* as joyful as thinking of the presents that we ourselves hope to get; and the appearance on all sides of lighted Christmas trees and of hosts of other good things—all these are with us right up to Christmas Day itself, with its unparalleled air of real happiness and friendliness. Christmas certainly is a festival of delight, and there is a deep meaning behind it that I am sure you will all keep in mind.

Christmas trees galore! A scene in the Lake District showing trees growing on the slopes of Helvellyn.

Here is what I think makes a fine Christmas story, although there are no ghosts in it, and indeed nothing of the pleasures of the festival! I read it many years ago in one of the works of de Quincey, the famous author, in which he tells of hearing at a party of the death of an acquaintance of most of those present. Of course, everybody at the party had something to say about the man who died. Some described him as bad tempered. Others said he was cruel to his family. And so they went on, each emphasising some unpleasant characteristic that he possessed. Finally, one man sitting in the corner commented *At any rate, he could whistle beautifully.*

What makes this a Christmas story? To me it is the fact that at least one of that company looked for *something* good in the man his companions reviled. I think we all do this at Christmas, when we are quite likely to hail acquaintances with whom we have little or nothing to do throughout the year and to wish them all a Merry Christmas. If we were to look for something good in everybody at *all* times of the year, each of us would be the better for it. And this applies also in the international world.

The Editor

Christmas Tree Harvest

By W. H. Owens

LIGHTED Christmas trees, twinkling through many windows bring a touch of magic to the dullest streets. This friendly way of spreading Christmas cheer has surely never been more popular among Britons since the custom was introduced from Germany a century ago.

There was a time when most of our Christmas trees had to be imported from the Continent. But to-day we can produce from our own woodlands all the young Norway spruce, fir and other suitable conifers required for the annual celebrations. While many are grown specially as Christmas trees, the bulk of the supply comes mostly from the thinnings of commercial timber plantations.

Many readers may not know there is a law actually prohibiting the general importation of Christmas trees, as a precaution against bringing certain tree diseases into this country. Import licences are granted only for a small number of gift trees from Continental cities for public display in Britain—for example, the great tree from Norway that has been a festive landmark in Trafalgar Square, London, each Christmas since the last war. Such trees, however, are subject to strict regulations from the time they arrive at a British port, and immediately after the Christmas display they must be destroyed.

These precautions are quite sensible now that timber production has become such an important industry here. We could not afford the risk of foreign conifer infections spreading to the valuable plantations now established in almost every part of the United Kingdom.

State and municipal forests, private woodlands and small nurseries, all send young conifers to the Christmas market. Some farmers with a few acres of suitable soil to spare find it well worth while raising Christmas trees. For while it takes a generation to grow a full-size tree for commercial timber, Christmas trees are ready for sale when they are five or six years old. The tree you may buy for your own festivities later this month may have been in the ground for anything up to about fourteen years. Trees twenty and even thirty years old are also sold, mainly for the decoration of hotels and stores, or for outdoor sites.

The largest producer of Christmas trees in Britain today is the Forestry Commission. This December trade is, of course, only a sideline to its main job of growing trees for timber. Yet the Commissioners sell about half a million Christmas trees each year to the trade, their value being

Lifting Christmas trees in the New Forest, between Lyndhurst and Ringwood. Photograph reproduced by courtesy of "The Times."

Tree cutting in the Lake District, around the shores of Lake Thirlmere.

in the region of £100,000. This is certainly a handsome return for what is really a waste by-product of the plantations. Most of the trees sold are unrooted and are the tops of conifer thinnings which would, in any case, be useless for timber. Small rooted trees are also sold, but these come from forest areas where it is necessary to thin at a very tender age.

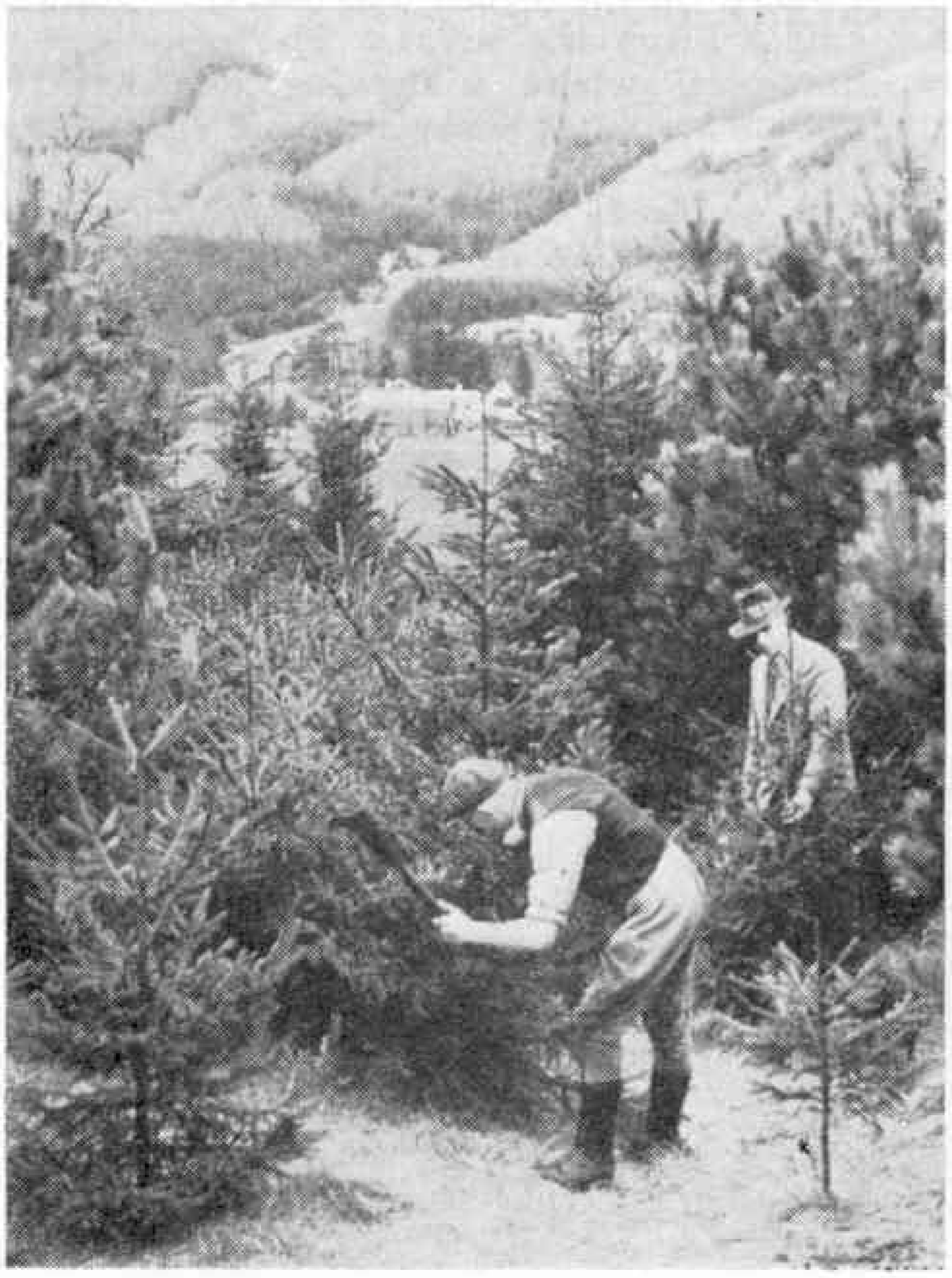
Thinning is a very important part of forestry practice. Far more trees are planted out on a new site than will ever grow to full size. But such crowded planting is necessary in the first place to give the baby trees protection against wind and storms. As the trees grow, thinnings are taken at intervals to give the remainder of the plantation plenty of space, light and air for development. The larger thinnings are converted into such saleable articles as pit props, fencing stakes and fencing rails.

As the Forestry Commission plantations have been increasing on a wide scale in recent years, the supply of Christmas trees from this source is assured for a long time to come. In fact, more and more will be available in future years.

Busy centres of Christmas tree harvesting in the North are the conifer forests about Lake Thirlmere, in Cumberland. These belong to the Manchester Corporation Waterworks—Thirlmere itself is the main reservoir for that city—and from this corner of the Lake District come between 30,000 and 40,000 Christmas trees every year.

A more beautiful setting for growing Christmas trees could hardly be found. If you have spent a summer holiday in the Lakes, you may well remember the magnificent views of Thirlmere from the main road beside it, between Ambleside and Keswick. So lovely is the scene today that it is hard to believe that both the lake and its enclosing woodlands have been in large measure created to serve man's needs —the one to satisfy a great city's thirst and the other to provide timber reserves.

Before Manchester Corporation annexed Thirlmere as a reservoir, towards the end of last century, only the great mountains round about it



Felling trees of a size that is sent away in thousands as Christmas approaches.

Measuring Christmas trees and tying them up at Thirlmere.

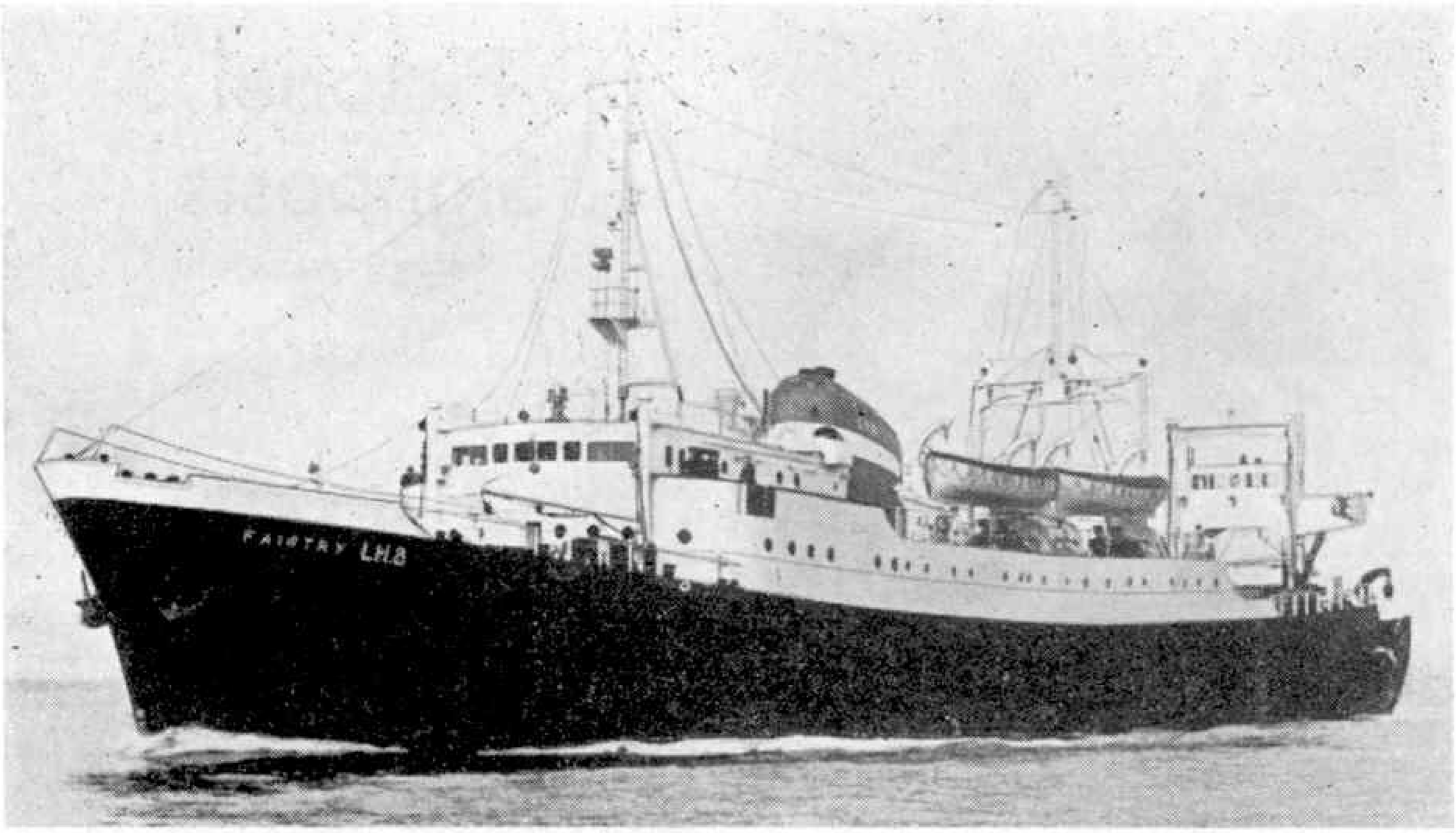
provided the same impressive background as they do today. Thirlmere seems to have been the most disappointing of all the Lakes, comprising little more than a number of shallow pools connected by narrow streams. By throwing a great dam across the valley, the lake level was raised by fifty feet and its total area more than doubled. Trees certainly grew about the neighbouring slopes before the reservoir was made, but the big afforestation scheme which followed it quite transformed the surroundings, adding to the natural beauty of the place.

Nowadays more than 2,000 acres of trees, mostly conifers, cover the mountain sides above Thirlmere, reaching in places to 1,700 or 1,800 feet. These plantations have been planned with the greatest care to preserve the natural character of the region, and plenty of the traditional English hardwoods, or broad-leaved trees, are seen growing among the firs and spruce.

Some 70 acres at Thirlmere are devoted entirely to Christmas trees. These have been planted close by the lake shores where, by reason of their limited growth, they do not obscure views up and down the expanse of water from the adjoining roads. This shore belt of Christmas trees makes profitable use of what was formerly waste ground and at the same time prevents animals like sheep straying to the lake edge and polluting the reservoir. Again, for the sake of preserving local amenities, larger trees are occasionally interspersed to avoid the effect of monotonous regimentation.

The cutting and loading of Christmas trees and their dispatch to city markets begins early in November and continues for about a month. Trees of the right age—mainly between seven and fourteen years—are selected carefully, so that their removal will leave no serious and ugly gaps. But the spaces will soon be filled again with new conifers of younger growth, to keep up the steady succession of annual crops. From the nearby Thirlmere forest nurseries, where something like half a million seedlings are raised each year, come the baby Christmas trees, many of which will be ready to play their part in the Yule festivities by the beginning of the next decade.

This giant Christmas tree, 45 ft. in height, bound and tied up, is making a start on its journey from Lakeland to some City Square.



The Motor Trawler "Fairtry"

By Ian B. Roy

A TRAWLER of revolutionary design sailed from the Aberdeen shipyard of Messrs. John Lewis and Sons Ltd. earlier this year. This vessel, the M.V. *Fairtry*, is owned by Christian Salvesen and Co., of Leith, and cost well over £200,000, or more than twice the cost of a standard trawler! *Fairtry* is an unusual vessel, however, for in addition to being a fish factory ship, she trawls over the stern. The trawl net is hauled aboard by way of a ramp set in the stern, in much the same way as whales are brought into whale factory ships.

The *Fairtry* is also remarkable because she is the largest trawler in the world. Her length is 245 ft., and her beam 44 ft. She has a draught of 25 ft. and a gross tonnage of 2,605.

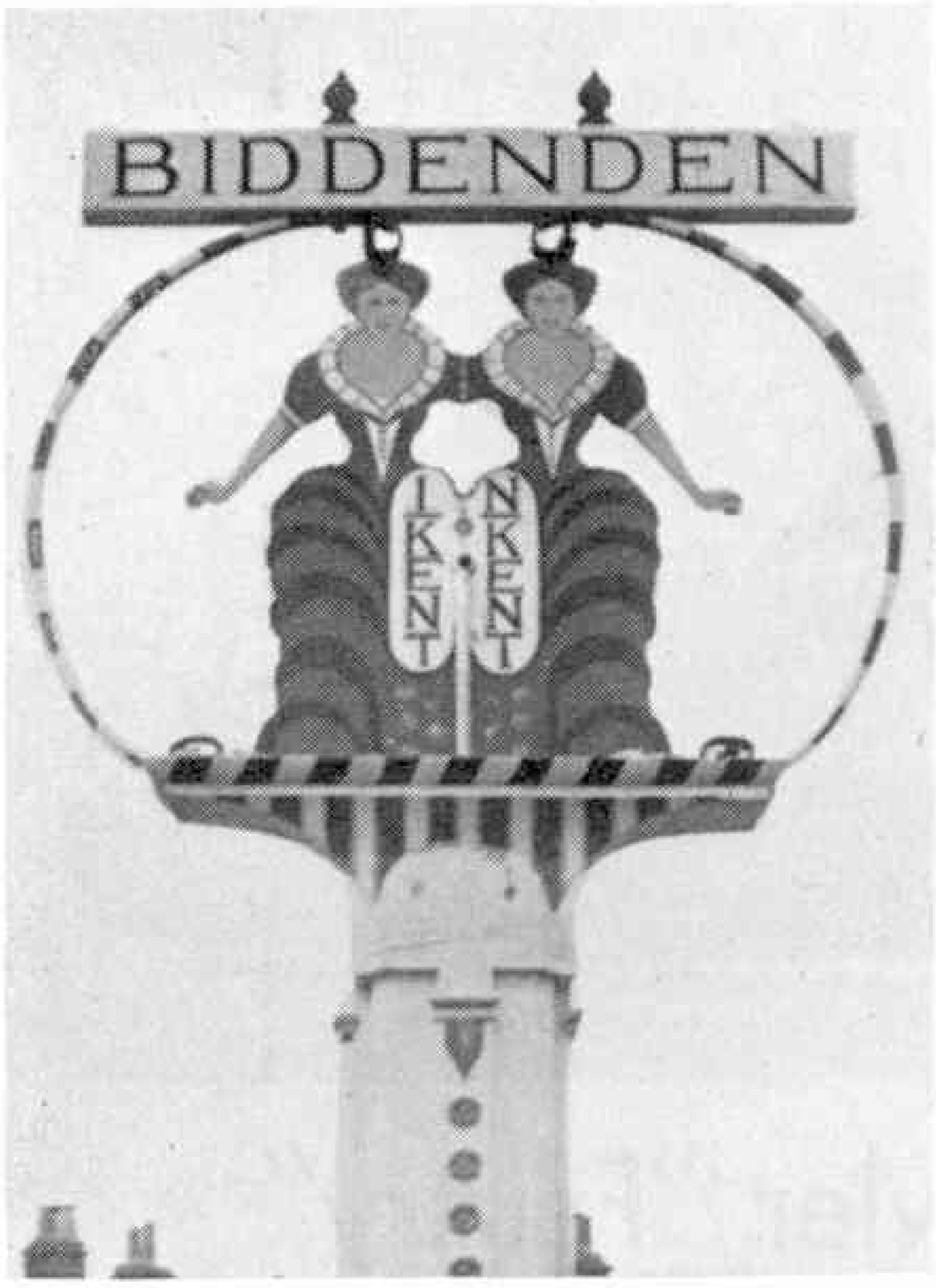
There are facilities aboard the vessel for quick-freezing, glazing, filleting, boning, skinning and packing fish as well as for reducing the fish waste to fish meal, and for extracting oil from fish livers. There are two batteries of quick freezers, and the holds are refrigerated.

When the trawls are hauled aboard the fish they contain is delivered into fish pounds on the main deck. Handling of the fish is reduced as far as possible. Electrically operated machines head, fillet and skin the fish and the products are taken to the refrigerated holds by conveyors.

Although the *Fairtry* is claimed to be the first vessel designed and built specially as a trawler and fish factory, Salvesen's have for some time operated a trawler called the *Fairfree*, which also trawls over the stern. Indeed, much of the experience gained from this trawler, a converted naval vessel, was incorporated in the plans of the *Fairtry*.

The illustration at the head of the page, reproduced by courtesy of John Lewis and Sons Ltd., Aberdeen, shows the novel trawler Fairtry, the largest in the world, as she appeared during her trials on completion. The Fairtry trawls over the stern, and is a factory ship, equipped for cleaning, filleting and freezing her catch.

In appearance the *Fairtry* is far removed, indeed, from the usual type of trawler seen round the coasts of Britain. Her engines, and consequently most of her superstructure, are amidships, giving the impression when seen from a distance that she is a small passenger vessel instead of a trawler. Captain Leo Romyn, her skipper, is very pleased with his ship, especially with the navigation bridge, which is remarkably spacious and is equipped with all modern aids to navigation and fishing.



The famous twin sisters of Biddenden.

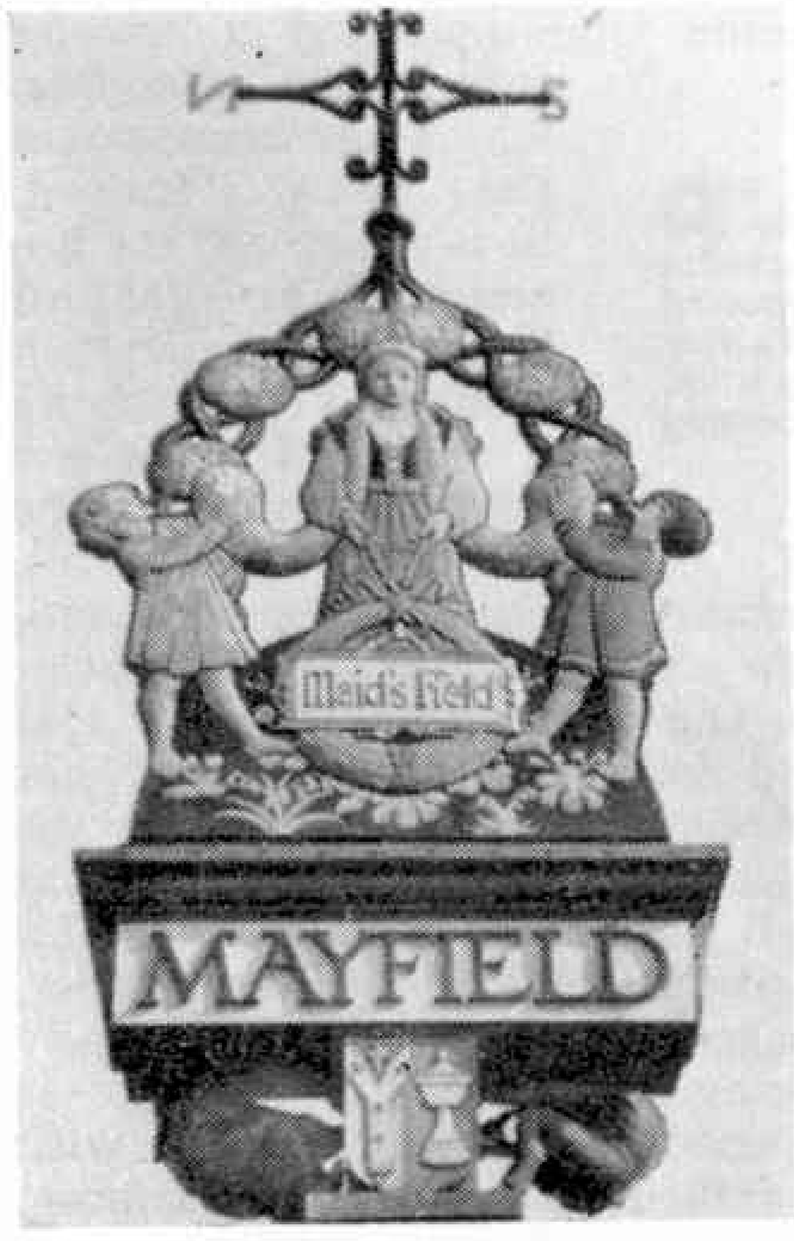
Pictorial Signposts

By J. I. Dibley

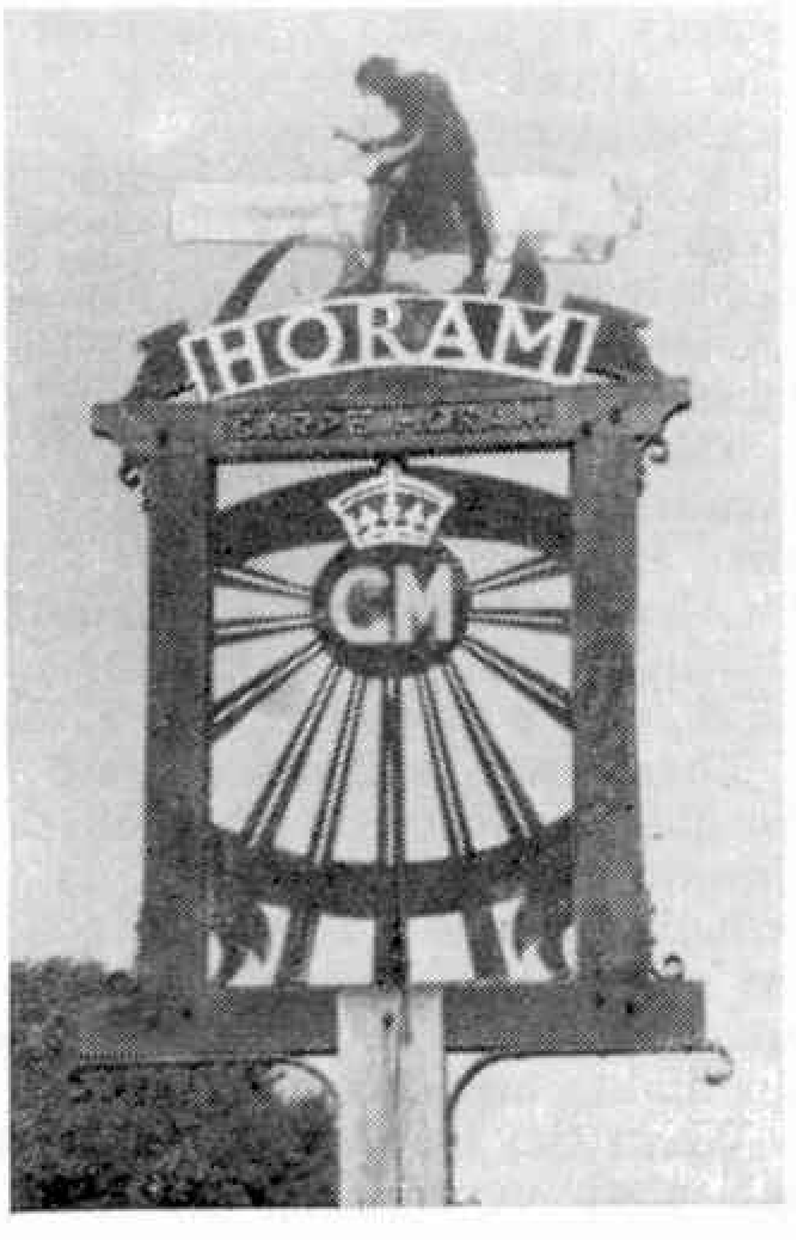
Dorking's signpost is unmistakeable.

MANY years ago, when few people could read or write, signposts had of necessity to be of a pictorial nature. Although this is not the case today, in recent years there has been a revival of the town or village sign.

Very often these posts recall past events in the histories of these towns or villages. The post at BIDDENDEN in Kent is a good example. This sign depicts famous twin sisters, Mary and Eliza Chulkhurst, who were born in the year 1100 joined at the hips and shoulders. The sisters lived



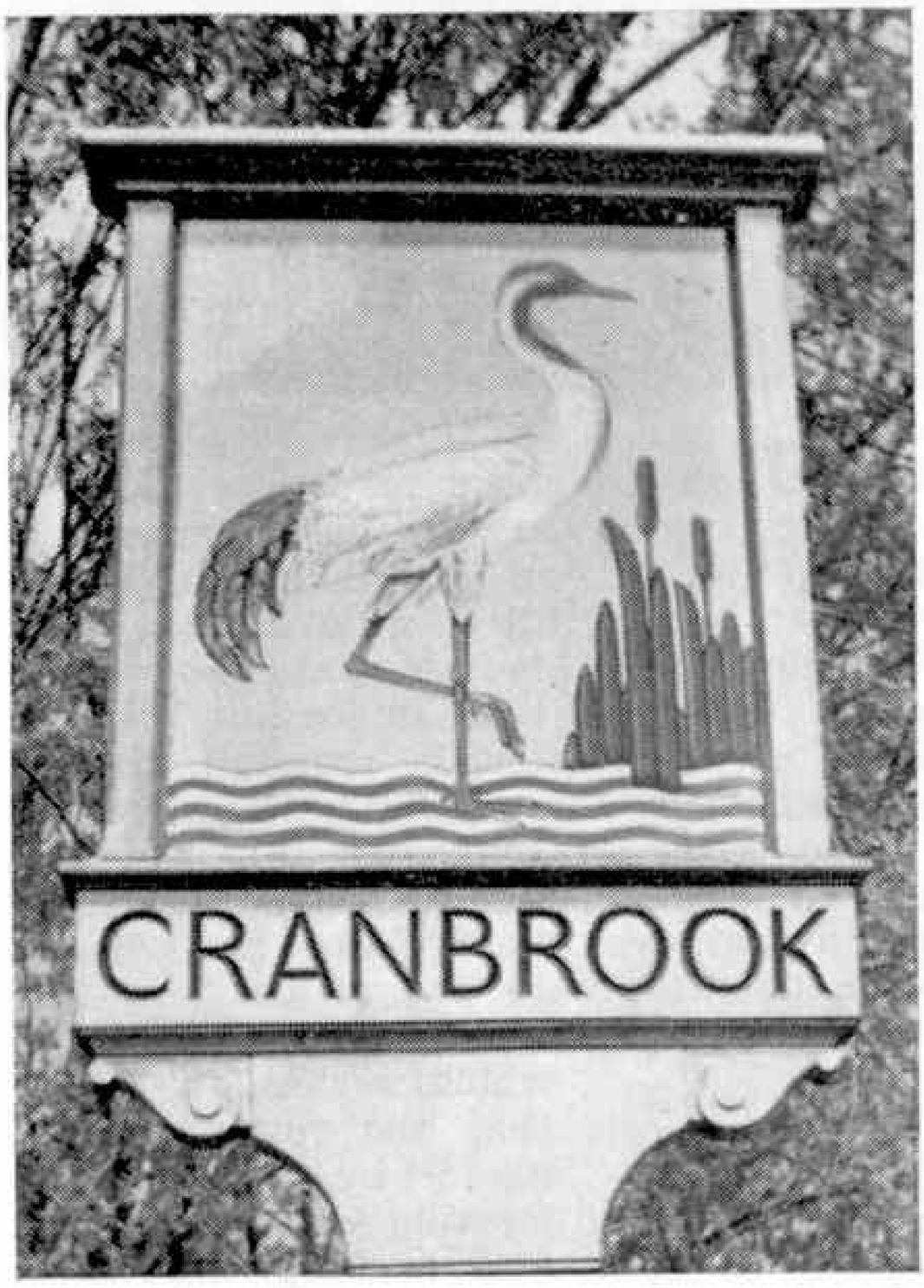
Mayfield—the Maid's Field—and Horam were both the sites of ironfounding in the days when the Sussex Weald was a great iron producing centre.



The pictures on this page show three delightful and apposite pictorial signposts.

this way for 34 years, and they died within a few hours of each other. In their will they left about twenty acres of land, the rent of which was to be used to distribute one pound of cheese and two 4 lb. loaves to each of the poor parishioners of Biddenden at Easter. This land is to this day called the "Bread and Cheese land."

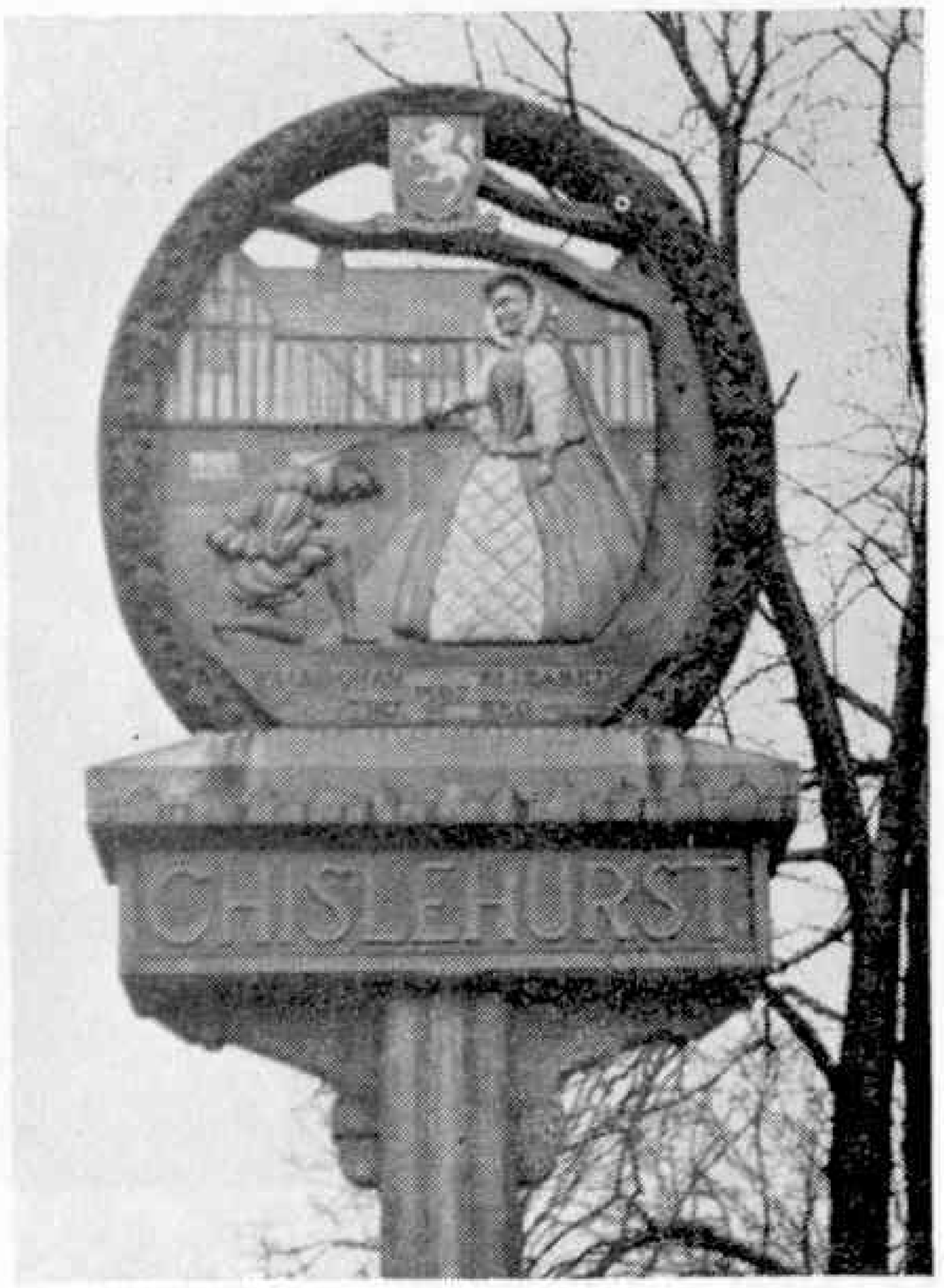
The post at DORKING represents the Dorking Cockerel, which in years gone by was bred in Dorking. This is a particular species of bird, and although it has not



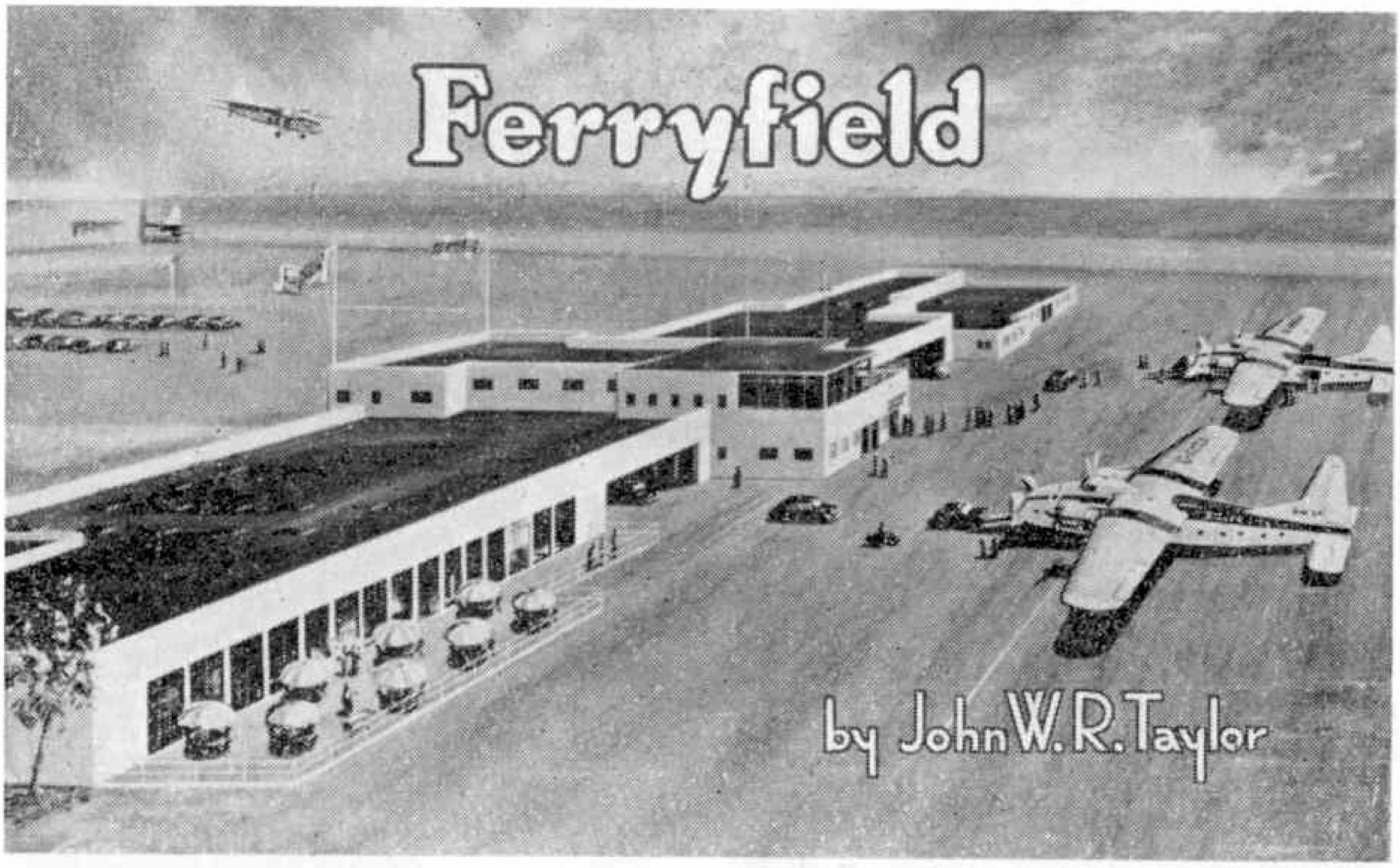
been bred there for many years, it has always been symbolic of the town.

Until the 18th century, Sussex had an iron mining industry, and a local rhyme at MAYFIELD says that "Master Huggett and his man John, they did cast the first cannon." Their craft was evidently carried on also at HORAM, a few miles away, judging by the post there. This shows a smith at work on a cannon.

The sign at CRANBROOK, in Kent, makes a pun on the name of the town, by showing a crane standing in a brook, while on that at CHISLEHURST Queen Elizabeth I is seen knighting Thomas Walsingham, which she did in 1597.



Many years ago, TICEHURST was known as Ticcen-Hyrst, from Ticcen, then meaning KID, and Hyrst, a WOOD, thus giving Kid's Wood, as seen on the post there.



WHEN Silver City Airways announced in October 1953 that they were going to build a new aerodrome at Dungeness, for their cross-Channel air ferry service, and that the first aircraft would fly from it in the summer of 1954, it was difficult to take them seriously. Nobody doubted the Company's enterprise or good intentions; but modern airports have a habit of taking years to build and usually cost a fabulous sum of money. So, after reporting briefly the airline's plans, most newspapers and magazines promptly forgot the matter and started counting the number of shopping days to Christmas.

Down at Dungeness, however, it was the number of working days to July 1954 that mattered, and the total was frighteningly small.

It was 14th December before the final plans of the new aerodrome—named Ferryfield—were approved. Even then, before work could begin, a private access road 1¼ miles long had to be laid from the main road so that the constructors, Richard Costain Ltd., could transport their equipment and materials to the site, which is one mile east of the town of Lydd and 72 miles from London.

Every modern technique was employed to get the work finished in time for the all-important summer tourist season; but it was an enormous task.

Biggest problem was to construct the two runways, one of which had to be 4,050 ft. long by 120 ft. wide, and the other 3,500 ft. long. This part of the programme might well have been impossible had not most of the materials required already existed inside the aerodrome boundary.

The whole of that area of Dungeness consists of deep shingle, covered with sand and a final layer of soft clay. So Costain's were able to make use of the new and speedy technique of "soil stabilization", which means, in effect, that the runways were made by mixing the existing soil with cement and packing the whole thing down by vibration to form a solid pavement, which was then coated with a tarred surface.

The photograph above shows an artist's impression of Ferryfield, Silver City's new airport at Dungeness.

In more detail, what happened at Ferryfield was that Costain's first removed the top soil to a depth of about one foot where the runways were to be built, and in its place put down a 27-inch thick layer of shingle, dug out from another part of the aerodrome. This was packed down by heavy steel sledges fitted with high-frequency vibrating rollers.

Next a 9-in. layer of clean sandy gravel was laid over the shingle and spread, a few yards at a time with cement, after which the two materials were moistened and

mixed simultaneously by a machine called a "single-pass stabilizer with rotary, paddle-type blades." The whole thing was then compacted by the vibrators, and left to harden for seven days, before receiving a final coating of tar mixed with stone or gravel. None of which is as simple as it sounds.

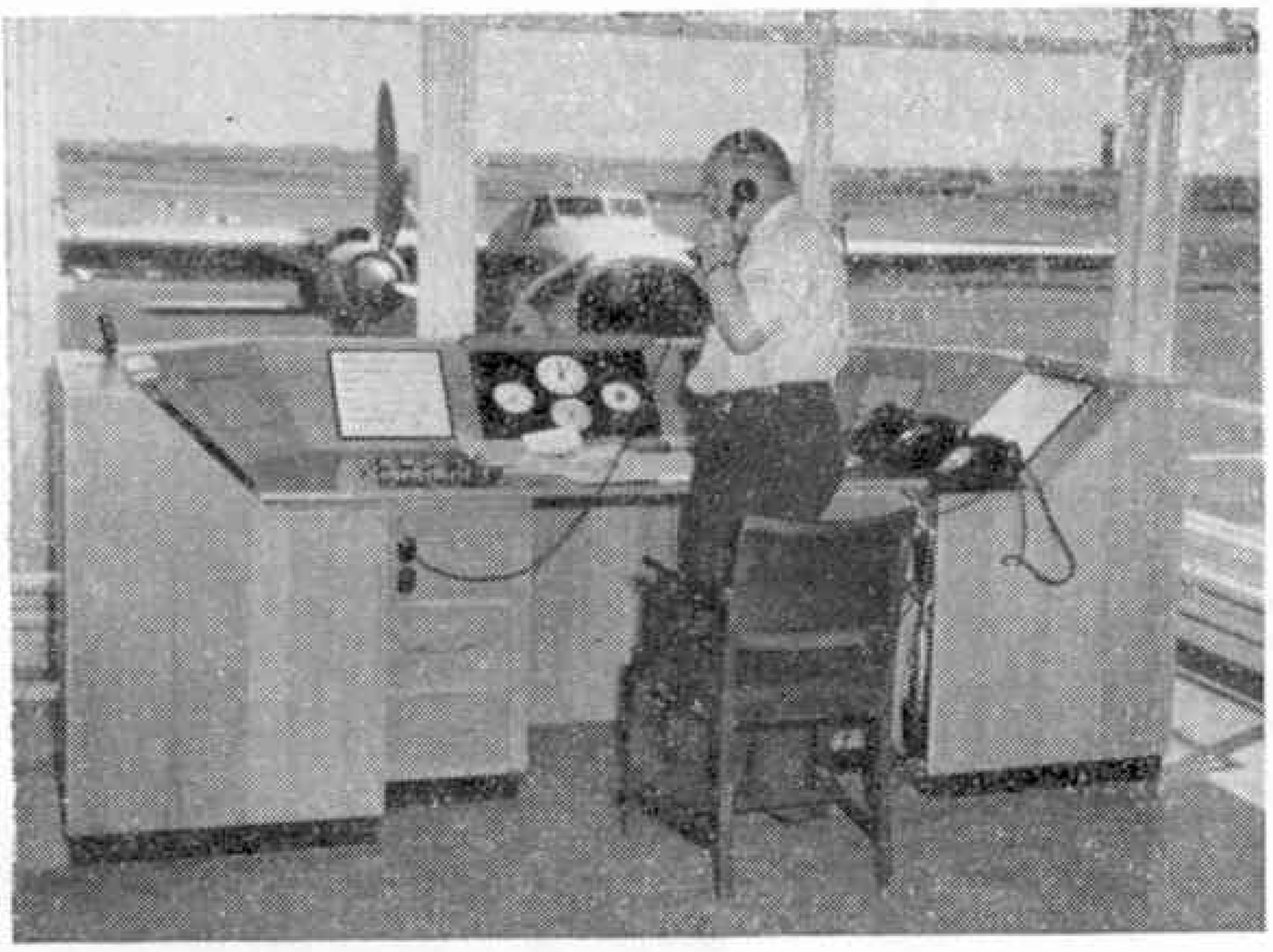
But that was only a start, for administration and terminal buildings, car parks, workshops, a petrol filling station, restaurant and other facilities all had to be provided.

Incredibly it was done; and at eight o'clock on the morning of 13th July, 1954, a Bristol Superfreighter made the first take-off from Ferryfield, carrying two cars, a motor cycle, a Vespa scooter and 15 people, including the Mayor and Mayoress of Lydd. The airfield had been built in less than six months, at a total cost of only £300,000.

It showed no signs of having been built in a hurry when I visited it a few weeks ago.

In fact, I have never been to a more "friendly", well-planned airport. It benefits, of course, from the fact that it is used by only one airline. This enabled the architect to design it with the sole object of getting passengers and their vehicles through the formalities and into the air with the least possible fuss and delay.

The terminal building measures 300 ft. long by 100 ft. wide, and is a simple steel-framed structure with concrete walls that will in due course be given a smart white coat. On the aerodrome side is the loading apron, big enough to accommodate six Superfreighters; on the other side a car park for 100 transit cars, and a second one for the cars of people who come to watch the flying or to wave "cheerio" to friends.



Inside the control tower at Ferryfield.

On arrival, passengers hand over their cars or motor cycles to the airline, complete with travel documents; and then forget about them until they land at Le Touquet less than an hour later, except for a few minutes when cars and owners come together in the Customs sheds.

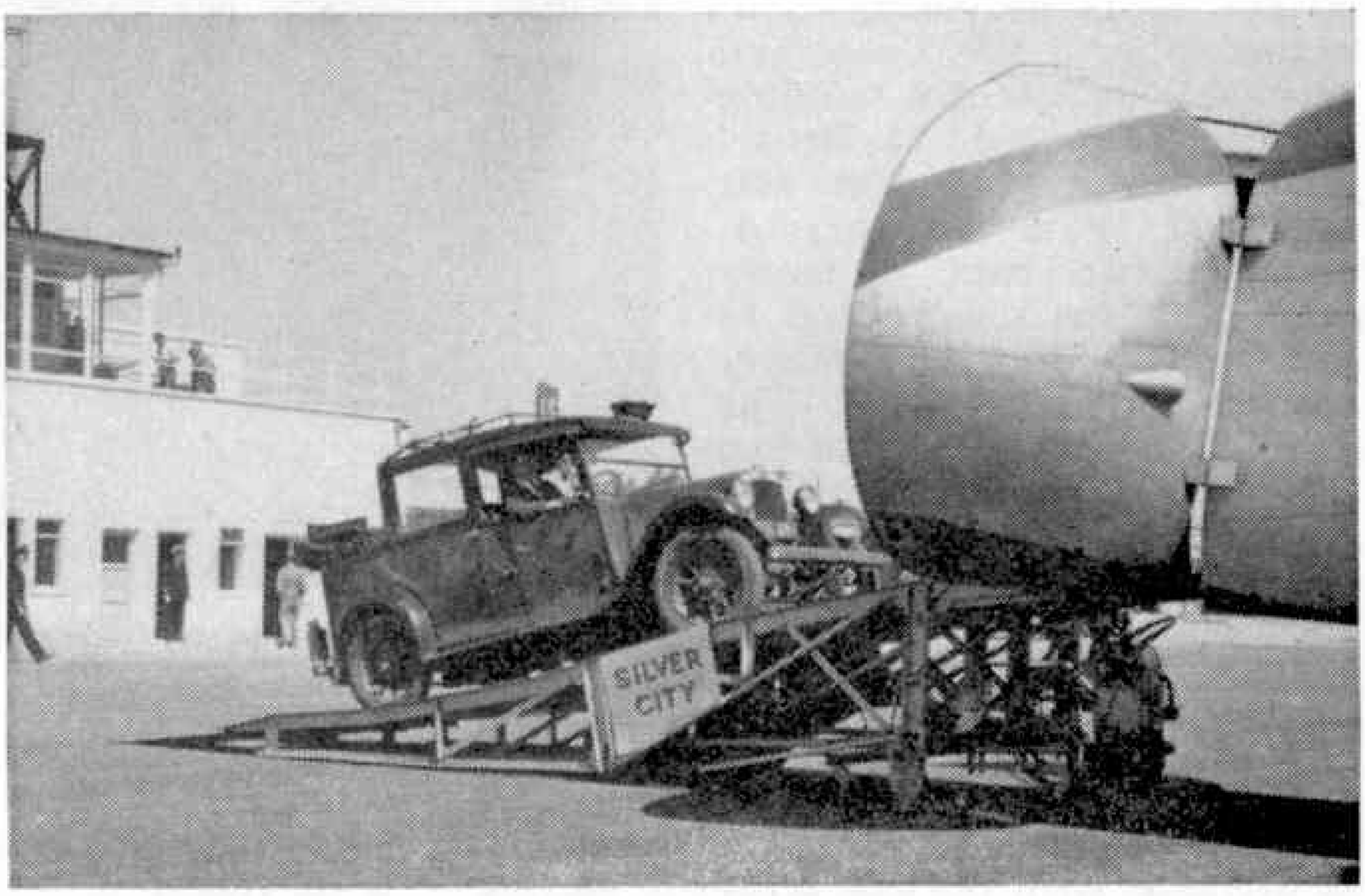
While waiting their turn, passengers can relax in Ferryfield's comfortable lounge, with its modern cream and red furniture, shop, bank and bar; or have a meal in the restaurant, which seats 100 people and is separated from the tarmac only by a wall of glass—a feature that appeals particularly to young 'plane spotters!

Not wishing to miss anything, I skipped the coffee and had a look over the control tower, which is at the front of the only

Passengers crossing the tarmac to go aboard a Silver City Superfreighter. A photograph taken from the terrace of the control tower by the author.

two-storey section of the terminal building. Full-length windows on three sides give a first-class view of both runways and lead out on to an open-air terrace overlooking the loading apron. The whole thing is far more spacious and neatly laid-out than the control room I saw at London Airport two years ago; and I was left in little doubt of the efficiency of the men who man it.

The morning was misty and take-off time for the first two aircraft had had to be postponed to give the fog a chance to clear at Le Touquet. Outside, lined up on the tarmac, was an impressive fleet of Superfreighters, some with cars already aboard,



The first vehicle to be flown from Ferryfield being driven up the ramp into the aircraft.

others with their huge nose-doors gaping wide, waiting to swallow up cars which seemed tiny in comparison.

Suddenly, a radio message was received to say that Le Touquet was clear. Within minutes, passengers had boarded the first aircraft, and its engines started with a roar that seemed so much louder because the whole air had been quiet and still a few seconds earlier. As it taxied out and took off, the engines of the second Superfreighter burst into life and it began waddling towards the runway, less than five minutes after the first. No. 3 was also on its way before I realised that it was my name they were calling over the loudspeaker system.

I moved even faster than the Superfreighters, down the stairs, through the lounge, to the Immigration and Customs rooms, where my wife was waiting with the sort of look on her face that left me in little doubt of her feelings about husbands who nearly miss the 'plane!

Within five minutes we were sitting in Superfreighter G-ANWH, and exactly 20 minutes later we were out of it again, in France. It was as easy as that.

For the time being, Ferryfield is being used only for daylight services; but it is the first of Silver City's bases to be equipped for night and bad weather flying, and as business grows night flights will almost certainly be started. All aircraft within a range of 16 miles of the aerodrome are picked up on the screens of a Decca 424 radar system, the scanner of which is mounted between the intersection of the runways, which are arranged in the form of a St. Andrew's cross. Later, a similar set will be installed at Le Touquet, giving almost complete radar coverage over the 42-mile route.

Meanwhile, the statistics on activity at British aerodromes which are issued each month by the Ministry of Transport and Civil Aviation prove that Ferryfield has got off to a good start. Although it did not begin operations until 13th July, in the remaining 19 days of that month a greater weight of cargo was flown from and to Ferryfield than any other aerodrome in the country. The weight of cars, motor cycles, bicycles and other freight that passed through it was 4,798 tons compared with a total of 2,879 tons at all seven of the big aerodromes in the London area.

In fact, if we add on the 4,551 tons of freight handled at Lympne and 962 tons at Eastleigh (Southampton), we find that the Air Ferry carried 70 per cent. of all the cargo that flew to and from the 40 major British airfields in July.

There could be no better indication of the importance of Ferryfield; and it will be busier still next year, because Silver City flew the last ferry service from their old base at Lympne on 3rd October.

It had never been a really satisfactory terminal. Being controlled (*Cont. on p. 614*)

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

HOUSE MOVING

The phrase "moving house" is not usually intended to be taken literally, but now and then, in New Zealand, it is possible to see it given full meaning. The scheme for the extension of Wellington's municipal airport at Rongotai, which will require the levelling off of two small hills and reclamation of land from the sea, has needed quite a substantial section of land with private houses upon it. It was felt that these, which were built of wood, could be moved instead of demolished, and this has already been done with a dozen of them.

It is none too simple a task to move a complete house undamaged for a distance of perhaps several miles, but there are in this country contractors specialising in this kind of work. In city areas, such as the Rongotai district, detours to use streets which will admit these "out-of-gauge" loads are often necessary. The accompanying illustration shows one house halted *en route* before being eased between two telegraph poles that are inconveniently close.

The problem in transporting a house is not chiefly one of weight, since a wooden house is not a high density load like the large castings or transformer units which are sometimes road haulage problems in Britain. The difficulty is rather in the awkward shape of the freight as well as its comparative fragility; even the best of kauri wood houses is not stressed for support by its middle, and in this respect somewhat resembles a large ship out of water.

J. R. Cook (Wellington, N.Z.).

A house removal in Rongotai, near Wellington, New Zealand. Photograph by J. R. Cook, Wellington.

THE ELAN VALLEY

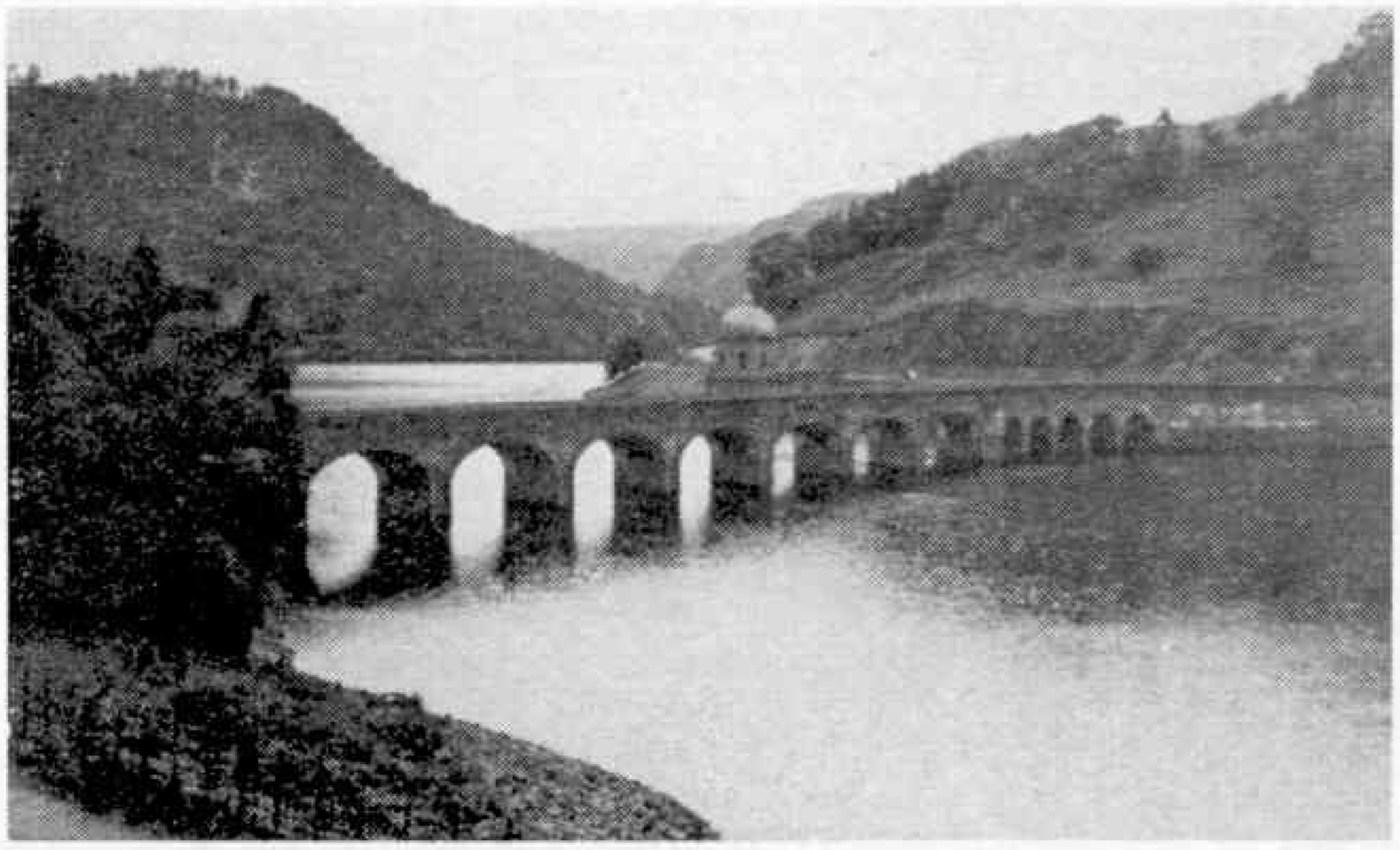
I visited the Elan Valley, which is often called "The Lakeland of Wales" last summer. It adjoins the Clærwen Valley, described in the January *M.M.*, and has in no way been spoilt by the creation of its three reservoirs. The lakes in fact are very beautiful, and provide some excellent fishing.

The main reservoir is formed by the Caban Coch dam, its name being Welsh for Red Cabin. It is the largest of the three, 122 ft. high and 610 ft. across, and the lake behind it stretches three and a half miles up the valley. Half way up it there is a very interesting submerged dam called Careg Dhu, or Black Rock, which has been built in case there is a serious drought. Then the lake would be divided into two parts, the portion above the submerged dam for supplying Birmingham, and the lower one for feeding into the Elan River. The road to the Clærwen dam passes over Caban Coch, as is seen in the photograph.

The two other lakes, Pen-y-gareg, or Head of the Rock, and Craig Goch, or Red Rock, make the line of reservoirs nine miles long, stretching from the rocks and woodlands of the lower Elan Valley to the wild moorlands at the upper end.

Together these Elan Valley reservoirs provide storage for some 18,000,000 gallons of water.

R. Bruce (Ashtead).



The road over the Careg Dhu Dam, in the Elan Valley, Central Wales. Photograph by R. Bruce, Ashtead.

Railway Notes

By R. A. H. Weight

Far and Wide with Stop Watch and Notebook

I am able to report interesting travels and observations of very varied nature this month.

Until the advent last summer of the 1¾-hr. *Bristolian* runs, and the much accelerated 1.15 p.m. Paddington-Bath service, the northbound businessmen's express leaving King's Cross at 7.50 a.m. for the north was Britain's fastest train with its 66.3 m.p.h. timing between Hitchin and Retford stops, 106¾ miles apart. With a 10-coach load, or about 350 tons, and facing a good deal of adverse grading, the severe slowing through Peterborough and perhaps other slacks imposed by the track engineers, it still requires a high standard of locomotive performance. It is worked by Leeds (Copley Hill) engines and men in the link also handling the *Queen of Scots* and one-way running with the *Yorkshire Pullman* and the *West Riding* between Leeds and London. The usual motive power is an A1 4–6–2 of recent design and class 8, though to my very interested surprise when travelling the engine was No. 60051 *Blink Bonny*, one of the original Gresley Pacifics of 1924 now rebuilt to A3 standard, class 7. This had been overhauled recently in Doncaster Works and has since been sharing a good deal in these important duties.

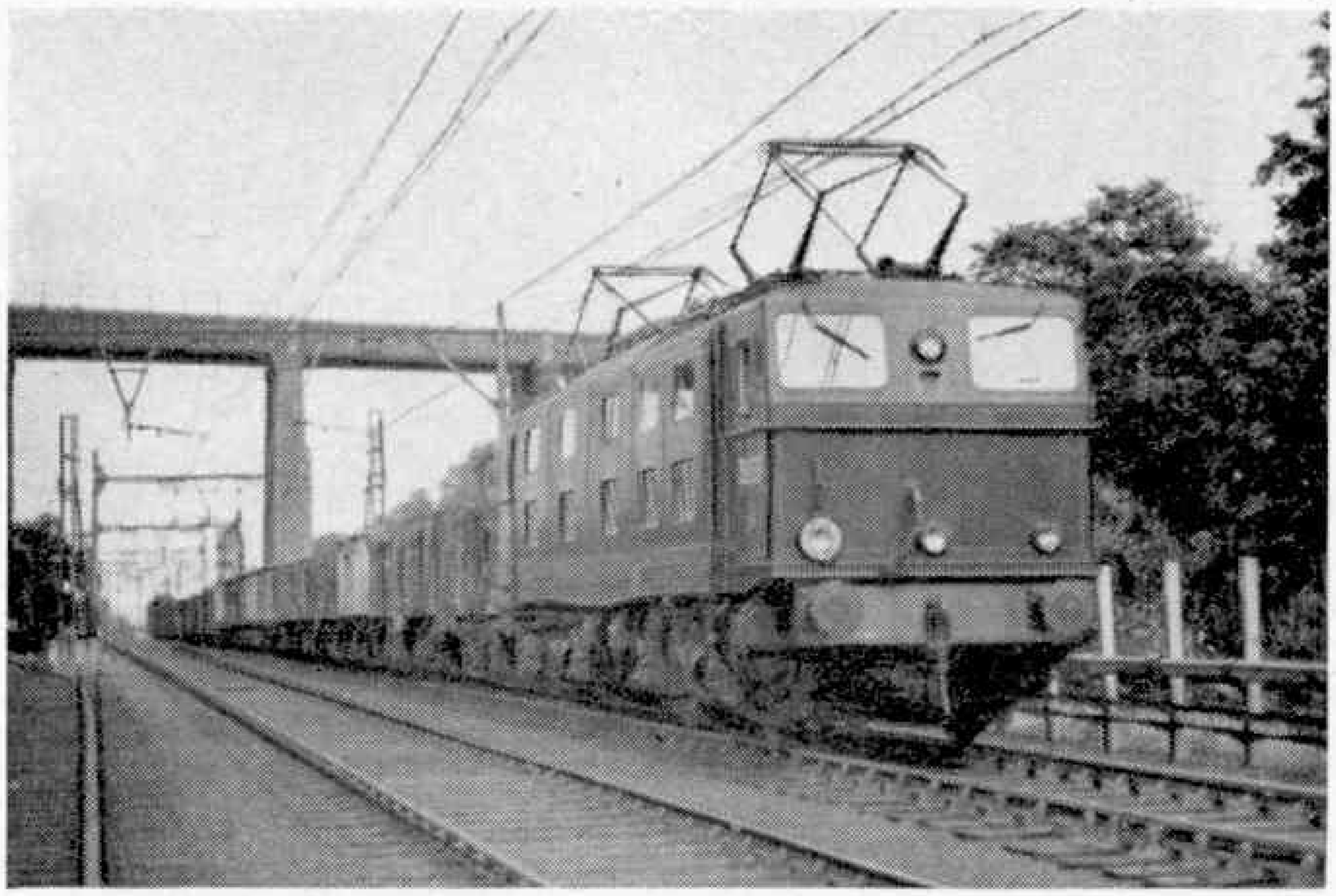
Aided by down gradients, the start from Hitchin was very fast in rough and rainy weather; 88 m.p.h. was attained near Tempsford and the first 27 miles to passing Huntingdon were reeled off in 24 min. An unfortunate signal stop occurred just south of Peterborough station and then, when we were climbing towards Stoke summit in grand style, came a long slowing owing to permanent way relaying near Corby Glen. These delays had cost quite 7½ min. and the express was 8 min. late passing Grantham, but by covering the last 33 miles to Retford stop in less than 29 min., with speeds uphill and down between 66 and 78 m.p.h., a stop was secured only 6½ min. late, representing an unchecked average of 67 m.p.h. overall. Several minutes were regained by fine running along the more easily timed 17½ miles on to Doncaster, whence *Blink Bonny* went on to Leeds with the first four carriages.

As customary for the northern stage to Newcastle and back, a sister A3 provided and manned by Doncaster shed took over the other six coaches, including restaurant cars. This proved to be another Pacific that had been very busy lately on first class work, No. 60055 *Woolwinder*, which once having attained full speed hurtled along on the level or slightly rising track at between 74 and 85 m.p.h. for 64 miles, apart from necessary slowings past Selby and to a greater extent through York. Notwithstanding a signal stop outside, Darlington platform was reached in a few seconds over the fast allowance of 72 min. for 76¼ miles, or in about 69½ min. nett. Mr. Ord secured the photograph reproduced on the opposite page as we rounded the curve by Clifton Engine Sheds, just north of York station.

At Darlington I saw some of the small B.R. 2–6–0s now becoming prominent in the neighbourhood, A8 4–6–2Ts, J21 0–6–0s, B16 4–6–0s and other former N.E.R. types. The up and down non-stop *Elizabethan* expresses passed at speed on the outside through tracks, headed respectively by *Dwight D. Eisenhower* and *Union of South Africa*.

The new light diesel cars have been described and illustrated in the *M.M.* In one of the dark green twin units, well filled, I found the trip from Harrogate to Leeds quite exciting. Through the large windows one obtains a wonderful view ahead or astern. I was in a back seat enjoying the fine scenery passed through at first, watching the curves and gradients, steam trains going by in the opposite direction, signals going to danger and so on from a rearward aspect. Never had I ascended the steep gradient through Bramhope Tunnel at such a speed, nor had I viewed the 3,750-yd. bore from such a privileged aspect.

Journeys by other light diesel sets on the Leeds-Bradford line one evening showed how popular and speedy the cars are. The complicated track layout in the vicinity of Leeds and Holbeck, with its network of main lines, connecting links and sidings, can now be observed to greater advantage than ever before.

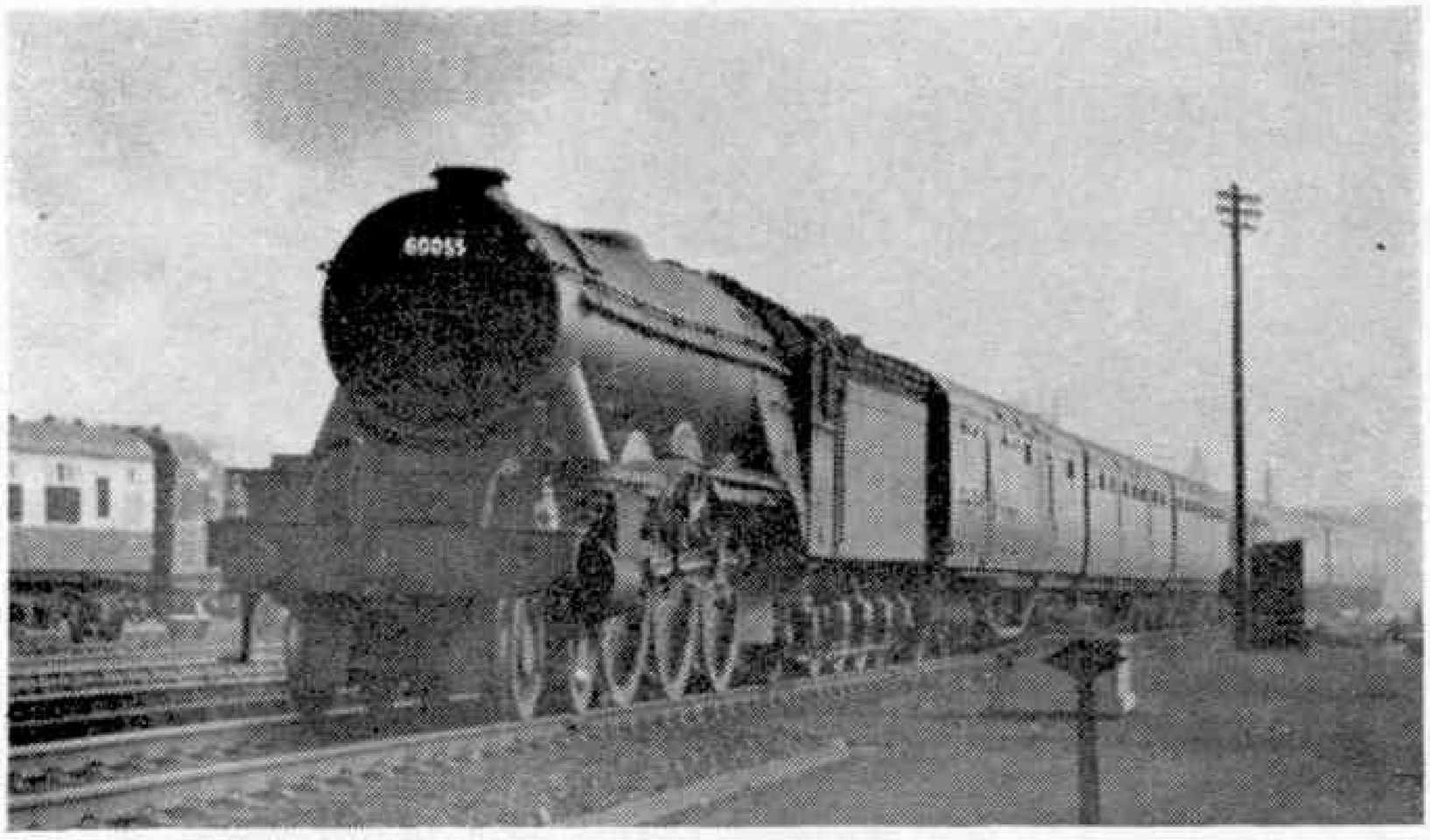


A Cudworth to Mottram mineral train leaving Wombwell main exchange sidings hauled by Bo-Bo locomotive No. 26039 with rear-end assistance from another similar unit. This and the upper illustration on the next page are from photographs by C. Ord.

A1 4–6–2 No. 60120 *Kittiwake*, hauled the corresponding southbound evening business express from Leeds to King's Cross. After attaching the Newcastle portion brought back to Doncaster by *Woolwinder*, and calling at Retford, this engine provided 90 m.p.h. travel down part of the Stoke descent towards Peterborough and a very fast finish from Huntingdon to the stop at Hitchin. The 4–6–4 No. 60700 was noted taking a freight train out of Doncaster yards.

Southern Notes and Travels

On secondary cross-country lines, mainly in Sussex, some of them passing through beautiful rural scenery having only a single track except at passing places, where L.B.S.C.R. locomotives once held sway, I travelled behind class 2 L.M.R. type 2–6–2T No. 41318 from Lewes to East Grinstead. At the latter station platforms and lines are on two levels almost at right angles to one another, with a double-track connecting link from the high level to the low. This is used by



The down "Business Flyer" passing York on the occasion of the run described on page 572. The engine is A3 No. 60055, Woolwinder.

passenger trains, which make a gradual curved descent or ascent as the case may be, and there is also a single line connection for engine movements between upper and lower yards, both of which I saw used.

There was a rebuilt C2x 0–6–0, No. 32445, on the Three Bridges-Tunbridge Wells passenger train. Other engines seen or travelled behind on the Tunbridge Wells-Eridge, Lewes sections included class 2 tanks: Nos. 41307 and 41316; class 4 2–6–4Ts No. 80015, 80018, 42086 and 42099; H 0–4–4T No. 31322; the one remaining E 4–4–0, No. 31166; and U1 3-cyl. 2–6–0 No. 31905 on the 3.52 p.m. Victoria to Brighton via Uckfield.

It is announced that five Clan type light Pacifics when built will be allocated to the Southern Region. They will be numbered 72010-4 and probably will bear the names *Hengist*, *Horsa*, *Canute*, *Wildfire* and *Firebrand*. New class 3 2–6–2Ts No. 82020-1 have not gone to the S.R. as first intended, but are on loan to the L.M.R. Nuneaton, 2B, shed. At Brighton Works 2–6–4T construction in the 80094 series was continuing at the time of writing.

No. 34088 *213 Squadron* was the engine on the Pullman Royal train conveying the Emperor of Ethiopia and an important party from Portsmouth last October by an unusual route from Guildford through Epsom, Mitcham Junction and Herne Hill to the eastern side at Victoria terminus. Other specials were one worked by No. 34071 *601 Squadron*, and another formed by a 5-car Pullman *Brighton Belle* electric set.

The Sheffield-Manchester Transformation

As the more complete operation by electric locomotives along the Penistone-Woodhead Tunnel route gets into its stride, news comes of some remarkable hill climbing achievements. Mr. N. Harvey logged No. 27001, one of the Large Co:Co units, with a Hull-Liverpool train of eight coaches plus van. This had a late start from Sheffield and then proceeded to attain and hold 62 m.p.h. past Oughty Bridge on the 1 in 132 ascent, followed by 60 on the 1 in 120 beyond. Penistone stop, almost 13 miles, was reached in 14 min. 4 sec. compared with what had been regarded as a rather tight allowance of 16 minutes.

Western Tidings

The Swiss gas turbine locomotive which was the first to enter service, No. 18000, has been noted a good deal on the early morning Paddington-Bristol duty, returning from Temple Meads at 7.45 a.m. followed by an afternoon round trip from London to Swindon and back.

Class 4 standard 4–6–0 Nos. 75025-9 were busy during the summer assisting heavy trains over the steep gradients of South Devon, with other duties based on Plymouth (Laira) shed. But I saw No. 75027 at Paddington in October, and also *Lightning* of the Britannia 4–6–2 class arriving from Plymouth, *Earl St. Aldwyn* (Castle) bringing in the *Torbay Express*, and *Dudley Castle* and *Cranbrook Castle*, respectively stationed at Bristol and London.

The two last-named engines headed the 1.50 Bristol-Paddington express, *Dudley Castle* no doubt being intended to haul the first part of the 6.30 p.m. back to Bristol on a busy Friday. *King Edward II* took out the 3.30 West of England Express, having a two-coach slip portion for Westbury; *Morehampton Grange* took the 3.33 semi-fast to Oxford and Birmingham, and *Hampden* of the Castle class hauled the 3.55 to South Wales.

An up Cardiff excursion in charge of No. 7016 Chester Castle, crossing from the relief to the main line at Reading. Photograph by M. W. Earley.

Christmas Pie

Seasonal Snippets on Yuletide Festivities

By Trevor Holloway

TWO Christmas Days In One Year! In 1752, many people didn't like the way our English calendar worked out, so Parliament revised it by making 2nd September the 13th. In other words, eleven days just disappeared into the blue. This annoyed many folk and some even insisted on keeping Christmas according to the old calendar while others observed the new.

A fragment of old glass preserved in the church at Askrigg, Wensleydale, Yorkshire, which portrays the three wise men in front of the Child.

Poor old Santa couldn't have known whether he was coming or going!

* * * *

A Cracking Idea! Tom Smith was a 19th century confectioner with ideas, always on the look-out for novelties to increase his sales. First he wrapped his sweets in fancy packets and enclosed a witty motto with them. Still he wasn't satisfied. He wanted something even more novel. One evening, seated by his fire, his attention was suddenly attracted by a crackling log which was spluttering out a series of little sparks and bangs. "That's what I want," he muttered. "If only I could find a way of making sparks and bangs come out of my packets of bon-bons they would sell like hot cakes."

But it took Tom over two years to perfect the first-ever "cracking bon-bon." His novelty proved so popular that he had to open a large factory where crackers could be made all the year round. And they still are.

* * * *

How Old Are Pantomimes? Pantomime is nothing new, for it was known in ancient Greece and Rome. Comic masques were imported into this country about A.D. 1700. John Rich, who opened the Lincolns Inn Theatre in 1714, staged one of our first pantos in 1717 entitled *Harlequin Executed.* Shortly afterwards, Drury Lane produced *Harlequin Doctor Faustus,* forerunner of the Lane's famous pantomimes.

The story of Cinderella is about 300 years old and, like Jack the Giant Killer, originated in France. The general theme of Red Riding Hood can be traced back to the time of Nero, and a version of Babes in the Wood was performed in London in the 15th century.

* * * *

A Not-So-Pleasant Christmas Present. The Romans, at their pagan observance of the Winter Solstice used to organise a kind of "lucky dip" idea called the Urn of Fate. Very amusing for the organisers, but not so funny for those invited to "have a go," for the urn contained several free tickets for the lions' den!

* * * *

Your Mince Pie Is Over 400 Years Old! It was popular, anyway, as far back as Good Queen Bess' day at least, and was often made in the form of a manger containing a representation of the Infant Jesus. Plum pudding was known in

Tiny model of the stable in Bethlehem shown in the Church of St. Nicholas, Bristol, at Christmas.

Queen Anne's time. It grew out of a still more ancient dish called plum porridge, or plum pottage, a kind of breakfast dish. Judging from an old recipe it must have been a strange concoction—mutton boiled in broth, thickened with brown bread and left to simmer in currants, raisins, cloves and ginger!

* * * *

Some Old-Time Xmas Fare. From the time of the Norman Conquest until ousted by the turkey, boars' heads held pride of place on the festive board. In the homes of the rich they were carried to the table festooned with leaves of bay and rosemary, and an apple was impaled on each tusk. A fanfare of trumpets sounded as the first slice was cut.

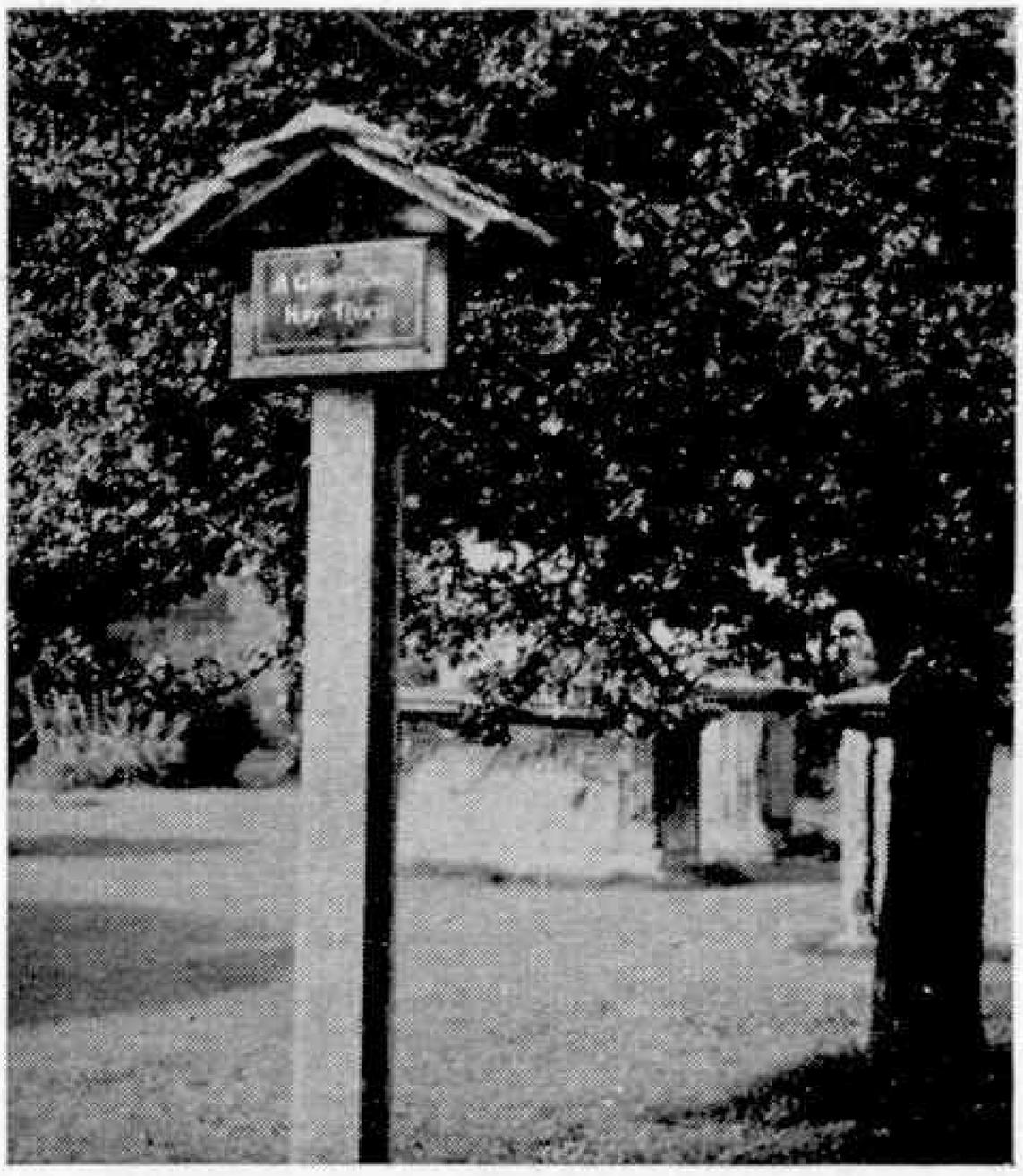
Another popular dish was roast peacock, a survival of Roman times. It was skinned without being plucked in order that the carcase could be sewn up in its feathers again as soon as roasting was complete. It was borne in state to the table with gilded beak and its magnificent fan-tail protruding from the dish. It was usual to place a wad of cotton in the beak soaked in spirit, which was then lit.

* * * *

The Great Stocking Mystery. How did the Christmas stocking idea originate? Legend says it was because St. Nicholas, later known as Santa Claus, once crept up to a cottage where three poor sisters lived and dropped a handful of golden coins through the smoke vent in the wall. Some of the coins fell into the girls' stockings, which were hanging up to dry before the fire. The girls hung up their stockings again the following year in the hope that their unknown benefactor would repeat his charitable act. And so, we are told, the Christmas stocking custom started.

* * * *

Other Countries Other Customs. The Christmas stocking idea is not universal. In France, for example, the children often place their sabots, wooden shoes, in the hearth for Santa to fill. Norwegian children have lots of fun hunting for their presents, which are hidden in all sorts of unexpected places about the house.



A Glastonbury thorn in flower at Christmas. The original tree was cut down by a fanatic in the 17th Century. This one, in front of Glastonbury Parish Church, grew from a slip taken from it, and is usually in blossom at Yuletide.

Under the Mistletoe Bough. No reader needs reminding of the importance of mistletoe, that romantic "spiv" of the plant world. Owing to its Pagan associations it is the one evergreen never used in the decoration of our churches. The ancient Druids regarded it with such reverence that they cut the twigs with a golden sickle, specially consecrated for the purpose. So sacred did they consider the plant that it was never allowed to touch the ground—a possible explanation why it is usually hung today.

The berries of mistletoe were much used by the ancients as ingredients for their most potent charms and spells. One variety is actually a parasitic parasite—it will only grow upon other varieties of mistletoe!

* * * *

Why "Boxing" Day? The name is derived from one of the few essentially Christian customs associated with the festive season. In olden days, charity boxes placed in churches were opened on Christmas Day and their contents distributed among the needy the following day—the "box" day. Later it became the custom for apprentices to carry around boxes for contributions from their masters' customers.

* * * *

Christmas Presents From The Past. Money invested generations ago still provides funds for Christmas charities. Some are very curious. In 1810 a Yorkshire man left money for the purchase of 480 penny loaves at Christmas—"to be thrown from the tower of the church at noon on Christmas Day for ever."

In 1682 a Lancashire farmer directed that rents from his properties should be used to provide forty people with a gift of £2 each at Christmas. But to qualify for the gift, the would-be recipients must listen to a sermon by a local clergyman. The clergyman receives 10/- for delivering same.

Another charity provided for the distribution of six scarlet gowns and hoods to girls of the parish. One wonders if the young ladies appreciate Red Riding Hood cloaks these days!

* * * *

The First Christmas Card. It is generally believed that the first Christmas card was the one designed by J. C. Horsley, R.A., in the year 1843. It depicted a jolly party with glasses raised in greeting and was inscribed *A Merry Christmas and a Happy New Year to You.* It was sent to friends by a certain John Washbourn of Islington.

* * * *

Concerning Carols. Carols have been popular for more than five hundred years. Many are derived from the old miracle plays that were performed in almost every village in olden days. *Christians Awake* was written as a Christmas present for his daughter by Manchester poet John Byrom in 1749. Charles Wesley wrote *Hark! the herald angels sing* ten years earlier, and Nahum Tate gave us *While Shepherds Watched* in 1700.

Bishop Heber scribbled his lovely carol

Christmas in Trafalgar Square.

Brightest and Best in his child's exercise book, side by side with problems in arithmetic! The manuscript is now in the British Museum.

* * * *

The Origin of the Circus. This is obscure, but ancient Rome had eight or ten permanent arenas. Largest was the Circus Maximus, built about 605 B.C. to accommodate over 250,000 spectators. Huge waterways were constructed on which realistic sea battles (*Continued on page 614*)

BOOKS TO READ

Here we review books of interest and of use to readers of the M.M. With certain exceptions, which will be indicated, these should be ordered through a bookseller.

"THOSE WERE THE TRAINS"

By H. Gordon Tidey (Ian Allan 7/6)

The railway photographic experience of our contributor Mr. H. Gordon Tidey goes back over 54 years, and in this Ian Allan publication there is a splendid selection of his locomotive and train photographs taken over that period. The author began his photographic work in the days of the independent railways, as they were before the grouping of 1923, and is proud of the fact that he is today the only active railway photographer who was busy with his camera in the 1890's.

Mr. Tidey has a special affection for the railways of his youth, so the accent here is on the trains of yesterday, or rather many yesterdays. Among the treasures illustrated are such engines as the Midland 4–2–2 *Princess of Wales*, unique in carrying a name, and a down express hauled by the one and only Great Western Pacific *The Great Bear*. Similarly we see a massive R1 4–4–0 of the former North Eastern and an incredibly clean Caledonian Dunalastair IV, appropriately climbing to Beattock Summit. There are other period views in plenty, with many photographs also of more recent times, all good examples of the variety that distinguishes Mr. Tidey's work.

Readers who want to know what the trains looked like that their fathers have so often told them about, and older enthusiasts wanting a permanent reminder of the trains that were, cannot do better than to obtain a copy of this well-produced publication.

"TEACH YOURSELF CONJURING"

By J. Elsden Tuffs
(English Universities Press 6/–)

A performance of conjuring tricks makes a grand finale to a Christmas party. But to be able to do them successfully requires lots of practice; so if you are thinking of staging a show of this kind at Christmas, you should start rehearsing immediately.

This excellent handbook will give you the "how and why" of a host of attractive conjuring tricks, ranging from easy card tricks to more elaborate affairs calling for a variety of effects. Most of these accessories can be made at home from "odds and ends". The instructions for doing so, and for performing the tricks, are simple and clear, and excellent line drawings ensure that you will easily learn how to perform the tricks.

All the tricks described have been performed successfully by the author, who concludes his book with some sound general advice on giving a conjuring display.

"FLIGHT HANDBOOK"

By Flight Staff (Iliffe 15/–)

For this new edition, the fifth, *Flight Handbook* has been extensively revised and greatly enlarged, and it now meets even better than before the needs of aviation enthusiasts who require basic information on the subject of aircraft, engines, and the theory of flight. For those professionally engaged in aviation in any of its many branches, it will prove a valuable permanent work of reference.

The fundamental theory of ærodynamics is simply explained, and the design principles of each class of aircraft, from balloons to missiles, are described. Engineering principles in piston engines, gas turbines, ramjets, pulse-jets and rockets are discussed, and the theory of ærial navigation is also covered. On the practical side, there is a vast amount of information on modern aircraft and engine construction; on auxiliaries, controls and instruments, furnishings and fittings, armament, landing gear and similar matters. Types of aircraft dealt with in detail include balloons, airships, gliders, sailplanes, piston-engined and jet fixed-wing machines, helicopters and other rotorcraft, and even guided missiles.

The book is illustrated by more than 200 photographs and drawings specially prepared by the staff artists of *Flight*. A particularly valuable feature is the series of large cut-away drawings on fold-in sheets, of current types of aircraft and æro engines.

"TRAINS ANNUAL"

(Ian Allan 9/6)

Once again we welcome the appearance of *Trains Annual*, the 1955 edition, which has been produced on the excellent lines made familiar by its predecessors.

There is some entertaining delving into history in a story of the South Devon Main Line by G. Freeman Allen. Norman McKillop gives first-hand reminiscences of his days as a North British locomotive man and we meet in print some of the quaint or unusual characters that he encountered. Railways in Canada, the United States and New Zealand have a fair share of attention, then, returning again to this country, there are three separate contributions on different railway routes of special interest. One particularly interesting section deals with locomotive "might-have-beens," engines that were never built. The diagrams alone of these make an entertaining study, while the circumstances of the preparation of the designs make very fascinating reading.

"TEACH YOURSELF SEAMANSHIP"

By T. F. Wickham
(English Universities Press 6/–)

Readers who are interested in ships can learn much from this informative handbook, which is designed to cover the Ministry of Transport's requirements for efficient Deck Hands and First Year Apprentices. It deals first with ship routine, describing the different departments of a ship, the various watches observed aboard, the terms used for describing position and direction, different types of ships and their structure. Subjects covered in later chapters include types of ropes and their functions, compasses and steering, flags and signals, anchors and cables, mooring and berthing, cargo work, and ships' lifeboats. Excellent line drawings illustrate the text.

"MEN OF THE FOOTPLATE"

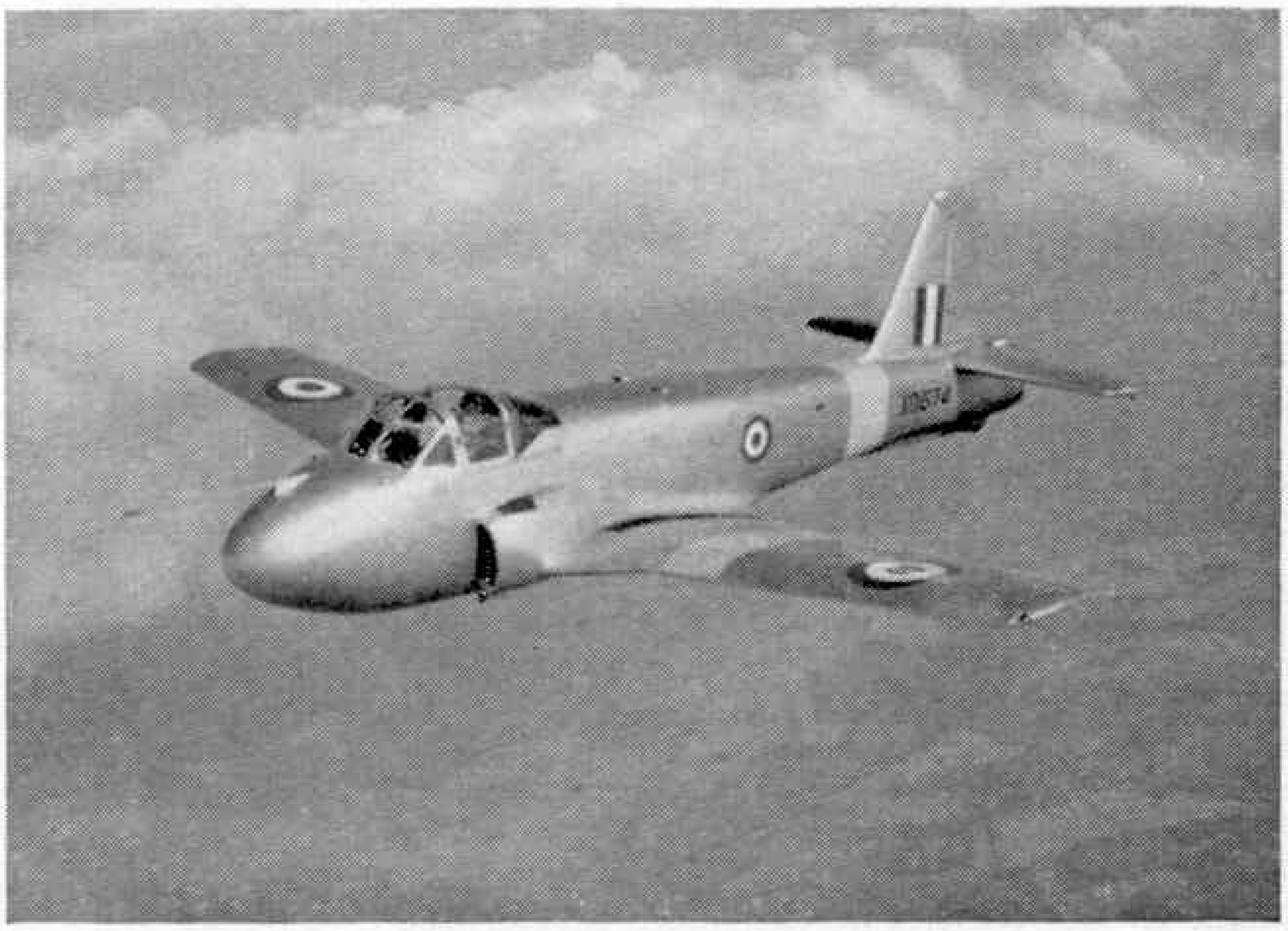
By P. Ransome-Wallis
(Ian Allan 10/6)

I suppose that at one time or another almost every *M.M.* reader has uttered the traditional wish to be an engine driver. Those who have will find *Men of the Footplate* of special interest, and I think other readers too will share this interest in this pleasant and informing book. In it the author introduces to the reader four top-link enginemen, from the Western, the Southern, the London Midland and the Eastern Regions respectively. Each of these tells in his own way how he started his career on the railway, and how he rose through the various grades to main line passenger work.

Inevitably the atmosphere of the footplate, which has to be experienced to be understood, and the characters of the enginemen in question permeate the pages of the book. There is more than engine lore in the footplate talk, however, for drivers are necessarily good railwaymen and, naturally, all four of those whose stories are told have something to say about their railways and other systems. A fine and interesting railway book, with excellent illustrations.

Air News

By John W. R. Taylor



Hunting Percival Jet Provost training aircraft in the air.

Jet Basic Trainer

The Hunting Percival Jet Provost, shown in the accompanying illustration, is a very important aeroplane, because it may in time change the whole pattern of R.A.F. flying training.

It is about two years since the Air Ministry decided that all R.A.F. pupil pilots would in future do their advanced flying training on Vampire jets, even if they were destined to fly piston-engined aircraft throughout their subsequent Service career. At the same time they announced that the Percival Provost, powered by a 550 h.p. Alvis Leonides piston engine, would be used exclusively for basic training, replacing both the low-powered "primaries" of the Tiger Moth and Chipmunk variety and the more advanced Harvard.

But even before the new Provost-Vampire training sequence got under way, the Air Ministry ordered a small batch of redesigned Provosts, powered by jet engines, to test the possibility of putting pupils into jets right from the start of their training. The advantages are obvious; the main one being that pupils would not have to un-learn the very different technique of flying piston-engined aeroplanes when passing on to the second stage of their training, on side-by-side two-seater Vampire T.Mk.11 jet-trainers.

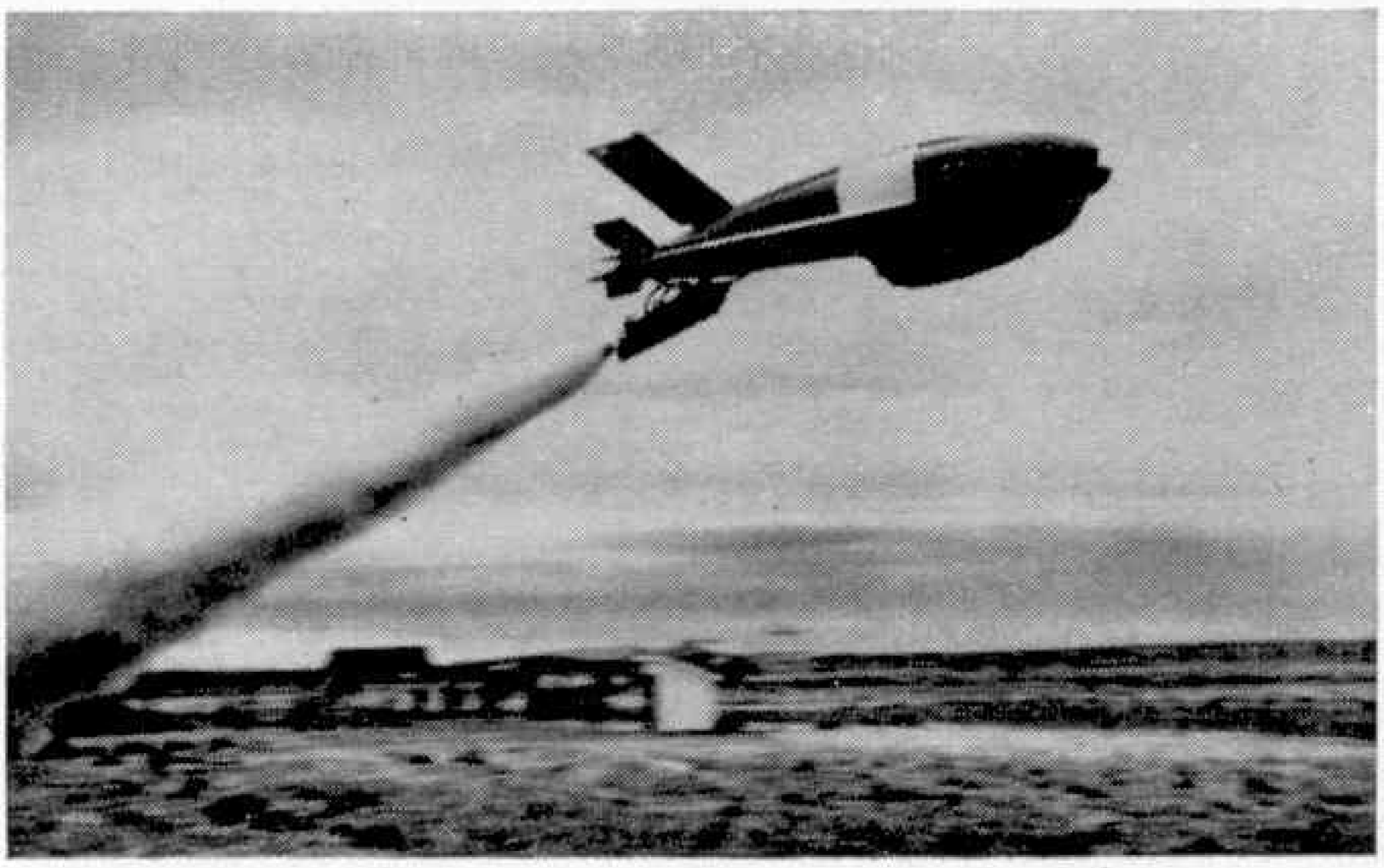
The prospect of starting on a jet might appear a little frightening at first; but the Jet Provost is no supersonic, hard-to-handle "hot rod". Its airframe is basically that of a standard Provost and it inherits the latter's delightful handling qualities and ability to withstand rough treatment from very new pilots. Main changes are in the cockpit, which is further forward, the fitting of a retractable nosewheel undercarriage and, of course, the use of a 1,640 lb. thrust Armstrong Siddeley Viper ASV.5 turbojet, which gives the Jet Provost a top speed of 323 m.p.h.

Pilotless Jet Target 'Plane

The vicious-looking Ryan Firebee pilotless jet target 'plane, shown streaking from its launching ramp in the lower illustration on this page, is the latest idea for giving anti-aircraft gunners realistic shooting practice.

Powered by a Fairchild J-44 or American-built Turbomèca J-69 Marboré turbojet of 1,000 lb. thrust, it has the speed, rate-of-climb and manœuvrability of a jet fighter. So, as its wings span only about 12 ft., it is by no means easy to hit, and it is equally suitable for testing the accuracy of supersonic guided missiles.

Designed for quick, easy assembly in the field, it is built up of five major units and can be put together by two or three men in little more than an hour. After launching from a ramp, with the aid of a 10,000 lb. thrust jettisonable assisted take-off unit, or from an aircraft in flight, it can be controlled by radio from the ground through a wide range of manœuvres at varying speeds and altitudes. When its fuel is exhausted, if it is hit, or if the controller wants to end the flight, a 70-ft. diameter parachute is released automatically from its tail-cone, to lower it gently to the ground for further use.

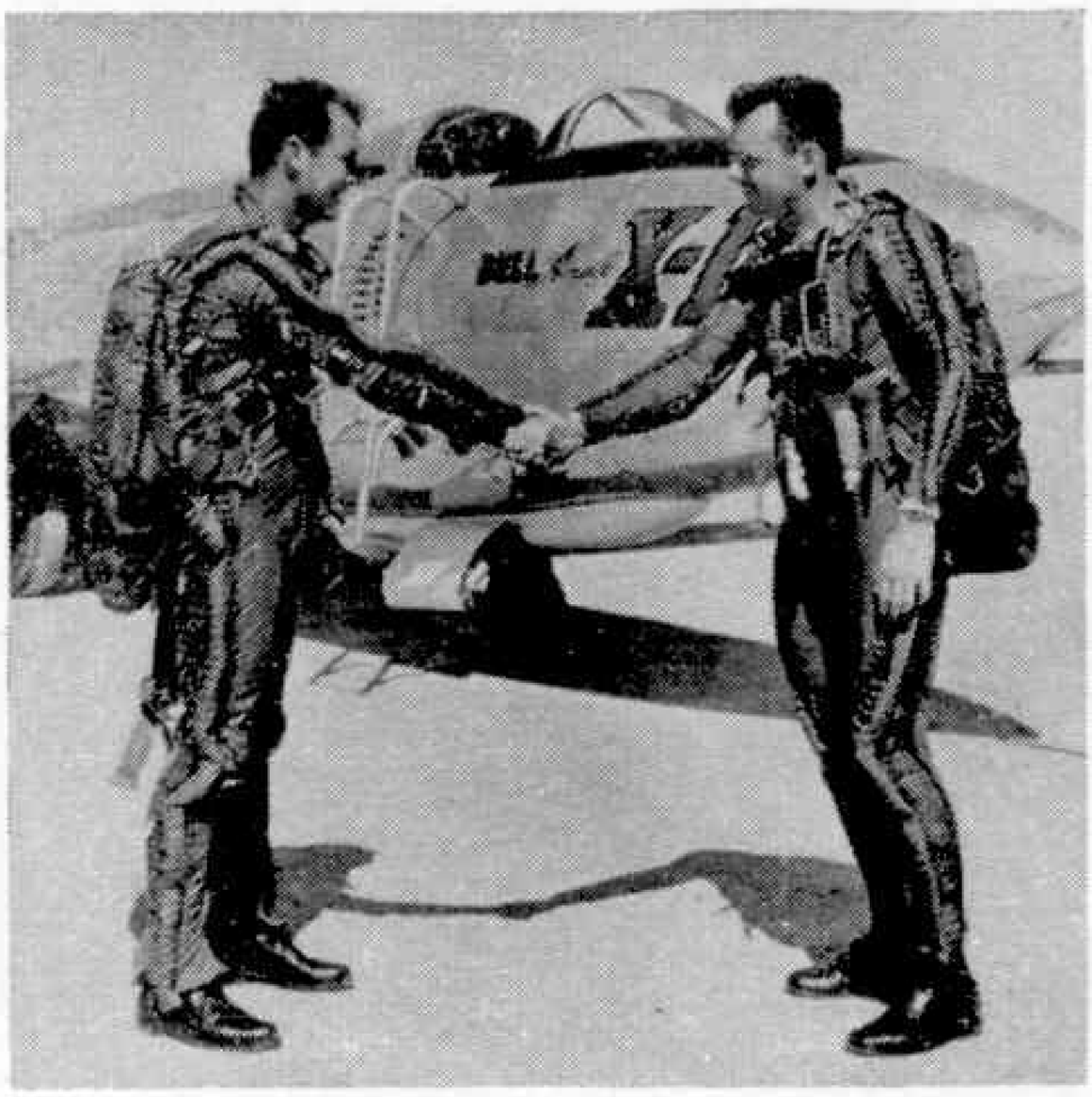


Ryan Firebee pilotless jet target launched into the air from a ramp with the aid of a 10,000 lb. thrust assisted take-off rocket.

Automatic Landing Approaches

All of K.L.M.'s Convair-Liner 340s have been fitted with special instruments by means of which landing approaches can be made automatically in bad visability.

Previously, K.L.M pilots did not use their automatic pilots when



Major Charles E. (Chuck) Yeager (left) and Major Arthur Murray (right) whose recent achievements in a Bell X-1A research aircraft are referred to on this page.

flying below 5,000 ft. The approach and landing had to be carried out manually, and demanded very quick reaction from the pilot in bad weather. His most reliable guide usually was an instrument with two needles—one horizontal and one vertical—which picked up signals from radio beacons and indicated the aircraft's position in relation to the approach path.

Now, a Sperry "Approach Coupler" feeds the signals from the beacons direct to the automatic pilot, which keeps the aircraft on to the ideal approach path, leaving the pilot more free to devote his attention to the let-down procedure.

Fastest and Highest

The two men shown in the illustration above are no ordinary pilots. Major Charles E. (Chuck) Yeager on the left was the first ever to fly through the "sound barrier" in 1947 and flew the Bell X-1A research aircraft to a record speed of 1,650 m.p.h. in December 1953. His companion, Major Arthur Murray, recently flew the same machine to a height reported as 90,000 ft. Although unsurpassed by any other aircraft, these figures cannot be claimed as world records, as the X-1A was launched from a mother-'plane in mid-air on each occasion.

The men are shown shaking hands because Yeager was sent to a new post with the U.S.A.F. in Germany a short while ago, so breaking up his partnership with Murray as members of the U.S.A.F. Flight Test Section at Edwards Air Force Base (Muroc), California. Both pilots are wearing T-1 pressure-suits, which help them to withstand the accelerations of high-speed flying. They are standing in front of the aircraft in which they made their record flights.

Shooting with Paint

Aeroplanes have been used for several years to observe and count herds of animals and flocks of birds for wildlife surveys. Now zoologists in Canada are using helicopters to help them to study the migratory habits of buffalo in Wood Buffalo Park, 400 miles north of Edmonton, Alberta. They fly low over the herds and "brand" the animals with paint squirted from a gun. This enables them to keep track easily of the movements of the marked animals.

Helicopter Speed Record

The international helicopter speed record over a 3-km. course has been raised to 156 m.p.h. by the prototype Sikorsky S-59 (XH-39). This machine is a development of the well-known 3-4 seat Sikorsky S-52-2 (YH-18), and is powered by a 400 h.p. Turbomèca Artouste turboprop.

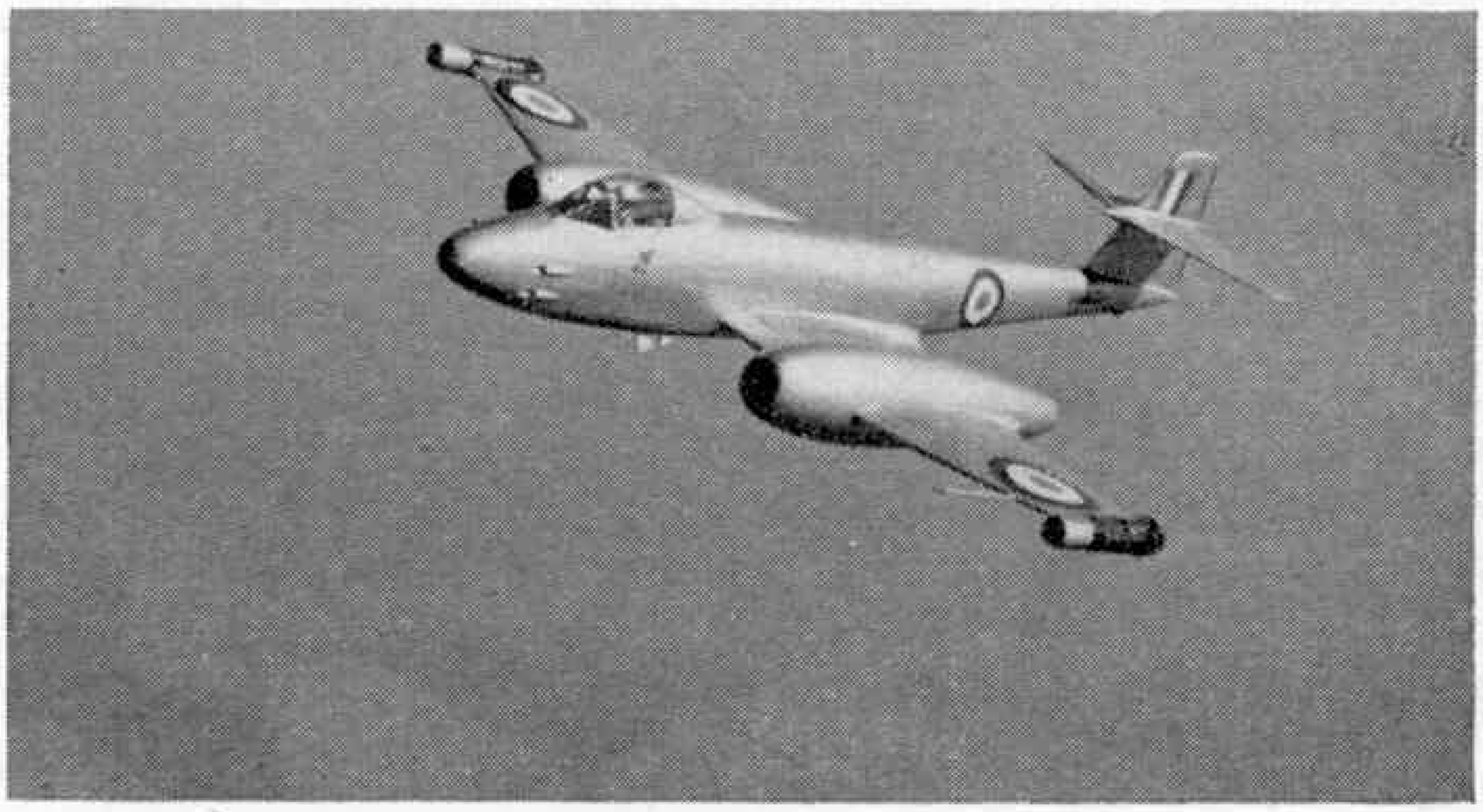
External Tanks for Air Liners

To increase their range, most of the newest air liners can carry external fuel tanks—a practice previously restricted largely to military aircraft. Both the Comet Series 3 and Viscount 700D have "slipper" tanks on the leading edges of their wings. The Douglas DC-7B has "saddle" tanks mounted above its engine nacelles. The Super Constellation, on the other hand, prefers two 500 gall. wingtip tanks, which increase its range by 850 miles, to 3,770 miles.

Baby Turbojet

Rolls-Royce have improved still further their reputation as the greatest aero engine builders in the world by releasing a few details of their new Soar baby turbojet, which is named after the River Soar in Leicestershire. Although it has a diameter of less than 16 in. and weighs only 275 lb., this incredible little engine gives a thrust of over 1,800 lb. Two have been fitted to the wingtips of a Meteor F.8, and at the S.B.A.C. Display in September last this 7-ton fighter flew sclely on their power, with its two normal Derwent turbojets stopped.

It has been suggested that the lightweight, high-powered Soar would be ideal to provide direct lift jet-thrust for a vertical take-off fighter on the same lines as Rolls-Royce's fantastic "flying bedstead" research machine, details of which were released in September. It is reported that Rolls-Royce have a contract to supply the Soar to power a new jet-propelled, radio-controlled target aircraft designed by the Radioplane Co., a subsidiary of Northrop Aircraft.



Gloster Meteor F.8 with a Rolls-Royce Soar baby turbojet fitted to each wingtip.

On the Footplate

From Liverpool to London on the Merseyside Express

By "North Western"

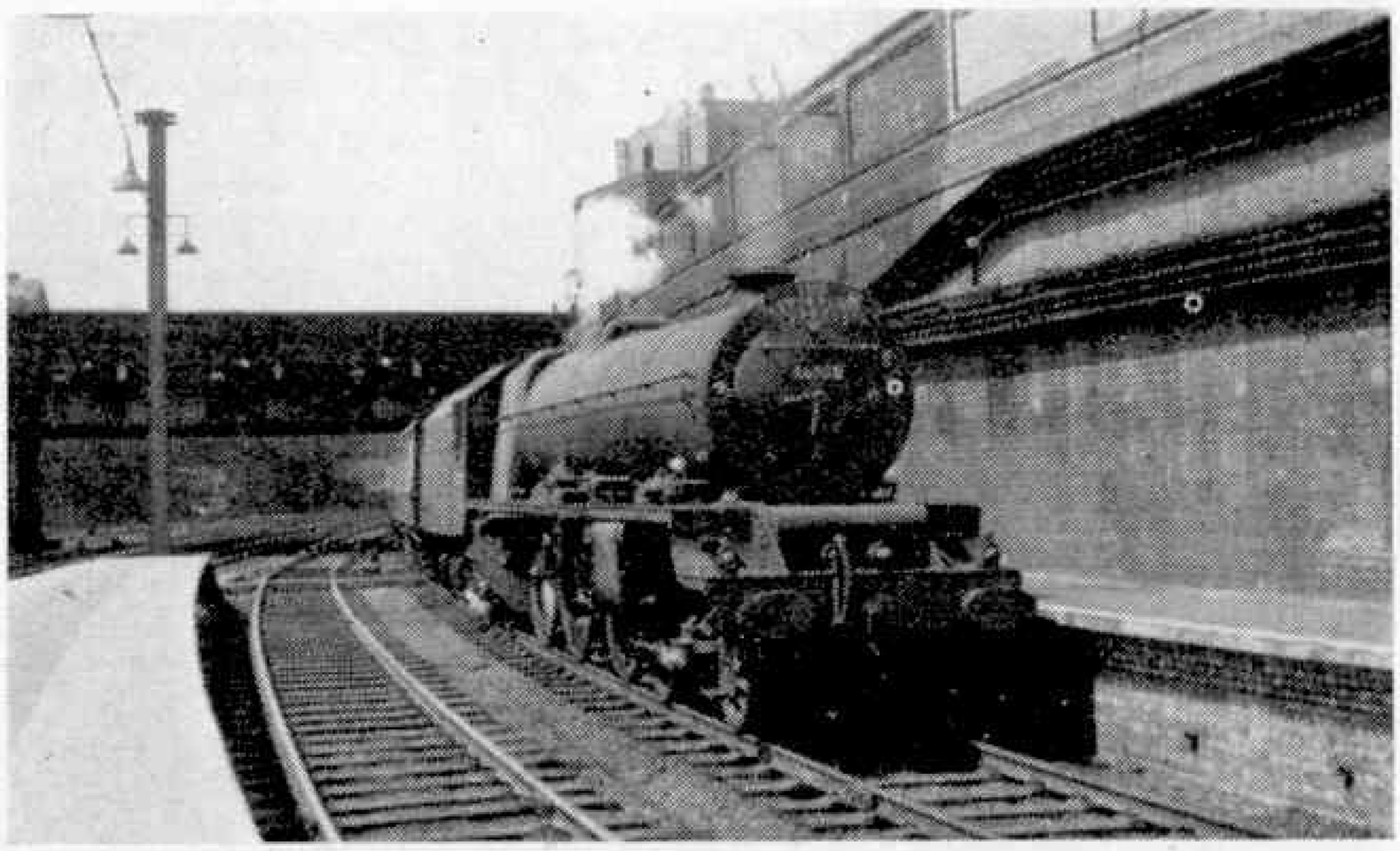
ONE fine morning I went to the London Midland Region Edge Hill motive power depot, in Liverpool, and climbed up into the cab of No. 46208 *Princess Helena Victoria*, to join Driver Harry Thompson and Fireman Jim Molyneux. Then we went out on to the line and gently down to Lime Street, where the main part of our train, the *Merseyside Express*, was already waiting in platform 6. Soon the Southport section arrived, to make the load up to 14 coaches, 439 tons tare, the usual mid-week load. A good trip seemed in prospect, with not too heavy a train, although even with an additional coach or two these Princesses—*Lizzies* to the men who work them—have the job well in hand in spite of their 20 years' service.

We got away on time, making a nice start from the station with only one very slight slip. The engine was not pushed specially up the climb to Edge Hill, an awkward proposition at 1 in 88/93, and soon we had the train rolling down the easier slope through Sefton Park.

A fast running stretch follows and it was good to skim along through the breezy morning sunlight past Allerton, Speke Junction and over the water troughs at Halebank. Water was picked up here and soon a long blast on the hooter marked the approach to Ditton Junction, where the London route begins to rise sharply up to Runcorn Bridge. An awkward curving approach lifts the train well above the chemical town of Widnes, and over the Mersey and the Manchester Ship Canal, and gives a good view, particularly westward, on a fine day. As we passed into the rumbling girders I was sorry to see that the little L.N.W.R. type distant signal, actually planted in one of the approach towers, that had been sentinel to the bridge entrance for so long, had been replaced by a colour-light overhead.

Above is a striking view of "The Merseyside Express" in charge of No. 46208 "Princess Helena Victoria," the engine responsible for the journey described in this article. This and the lower illustration on the next page are from B.R. Official Photographs.

Upward at little easier than 1 in 100, we could distinctly feel the pull of the load from the bridge to Halton Junction and just beyond. But we held our own and fairly soon it seemed we came to the immediate summit, went down again and then slightly up past Sutton Weaver. Easing now, we swung across the West Coast main line at Weaver Junction, surely one of the earliest flying junctions in this country. Once on the main line proper, steam was on again, and at Winsford we blew one long and three



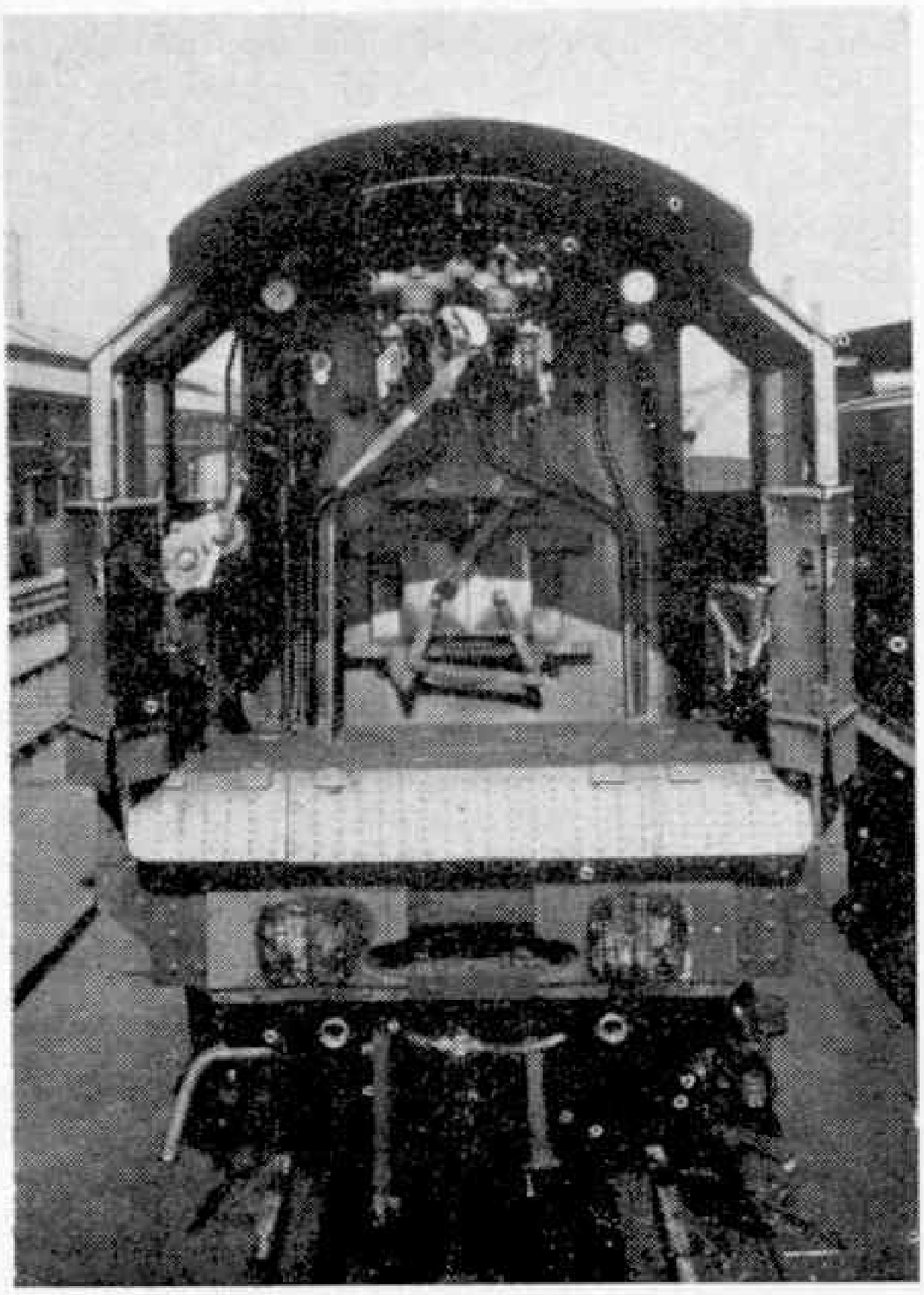
No. 46208 at the platform end at Euston. Photograph by R. F. Roberts.

short toots, the call for trains not stopping at Crewe, and later we passed easily through Crewe, two minutes early on booked time.

The stretch from Crewe to Whitmore is uphill for nearly 10 miles and with steam on gently just after the station we pressed on to the climb, reaching a steady gallop by Basford Wood. In view of the 1 in 177 to come Jim Molyneux had already begun steady firing as several green colour-lights in succession beckoned us on. Over the easier stretches of road it had been sufficient to fire through the gap between the top of the closed air flap and the fire-hole, an operation that demands nice judgment in loading and swinging the shovel. Now over this heavier stretch of road the flap was left down as bigger shovelfuls were fed in, two to each of the back corners with a wristy flick, and two or three more covering the area in front of the door making a typical round. So we came past Wrine Hill box, pulling steadily, and between mileposts 151 and 150 it was good to note the specially fine curving and alignment of the four tracks.

After Whitmore, where the welcome level carries the water troughs of that name, we entered a nice running stretch and eventually, at a good speed, we approached Stafford. Going through the station I felt I simply must get a view of the train rounding Queensville curve immediately after leaving the Wolverhampton line at Stafford No. 1 box. Over to the driver's side therefore, to look back and see the train dutifully following our tender round the splendid sweep of the curve, while our Princess got into her stride once more. Then along the Trent Valley Line we moved so splendidly, with a good road, that it was a surprise to be greeted by the yellow warning of a distant signal, and soon we came to a stand, just short of Elmhurst Crossing. We stood there for nearly three minutes, "*There'll be a goods doing a bit of a shunt at Lichfield,*" said Harry, while Jim dropped down in order to go to the signal box just ahead. Actually this section is track circuited, as shown by the white diamond plate on the signal post, but my friends were taking no chances.

As luck would have it, the signal cleared before Jim had got very far, so we moved off gently to allow him to jump aboard. Then we got away in a business-like



A Princess cab showing clearly the regulator handle, screw reverser, fire-hole doors and other cab fittings.

manner, the engine at 55 per cent. cut-off, which was of course gradually eased back to the normal running position of 20 per cent. or less. Yes, sure enough at Lichfield No. 2 there was the train of vans that had held us, now standing serenely in the loop just short of the station.

All smiles after a good run. Driver Harry Thompson and Fireman Jim Molyneux at Euston. Photograph by R. F. Roberts.

While our Princess rode easily along, burbling happily from the chimney, I watched the constant but ever-changing footplate scene, always so familiar, yet always so fascinating—Harry at his window, eyes on the road ahead, but glancing inside now and again to see all was well; Jim plying his shovel, hosing down, sweeping up and watching his water and steam gauges.

From time in hand at Stafford we were just over six minutes behind at Tamworth, but on the footplate it was evident that there was quiet determination that we should win back those precious minutes. We pressed on, overbridges hissing momentarily or roaring longer encouragement, according to their type. Very soon, it seemed, Newbold box, then the troughs, came in sight, but we had already shut off steam in view of the approach to Rugby. With a long warning call from our hooter, we passed through the station clear of the platforms and were soon past the locomotive testing station. Steam was on again by the large girder bridge where the old Great Central route passes over, and up we went to Hillmorton. Still climbing, we were now approaching Kilsby Tunnel, which meant such a packet of trouble for the London & Birmingham Railway engineers, and where some time ago their present-day counterparts completed the renewal of the permanent way and an extensive drainage installation. Hooting, we plunged noisily into its blackened mouth with nothing visible in front, and only the glow from the partly-closed fire-hole allowing us to pick out in flickering relief the details of the tender front and a scarf of steam trailing steadily behind. Kilsby has two very big ventilating shafts, each providing a brief, weak interlude of daylight as we passed them, and then two hoots proclaimed our approach to the southern mouth.

Pace increased out in the open and in Roade cutting, which makes a noisy stretch as you run between its chalky walls, we had 62 minutes left at the 60th mile-post from Euston. Would we be in on time?

Now we were on the familiar four-track way that stretches from here to Euston and brisk running brought us quickly to Castlethorpe, with its lofty signal box and then its water troughs, to the Ouse viaduct and to Wolverton with its extensive carriage works. There were landmarks in plenty, including Denbigh Hall, where in 1838 passengers from Euston to Birmingham took a road coach to Rugby, as Kilsby tunnel was still in its building throes; and then with a warning hoot we spun through Bletchley, to tackle the long climb thence that is spread out over the 15-odd miles to Tring summit. It was not until milepost 35, practically half way up the final stretch of 1 in 330, that the engine seemed to feel the pull of the train and the cut-off was lengthened slightly. With the Princess talking more loudly in consequence, Driver Thompson lent a hand with the shovel in order to give his mate some relief over the later stages of the climb through the deep and chalky Tring cutting.

Once we were over the top, progress was restrained for a bit, as we had to shut off steam and hoot a warning in view of a permanent way slack in force near Northchurch (*Continued on page 614*)

Puzzles for Beginners

Easy Entertainment for the Christmas Party

By H. Hutchinson

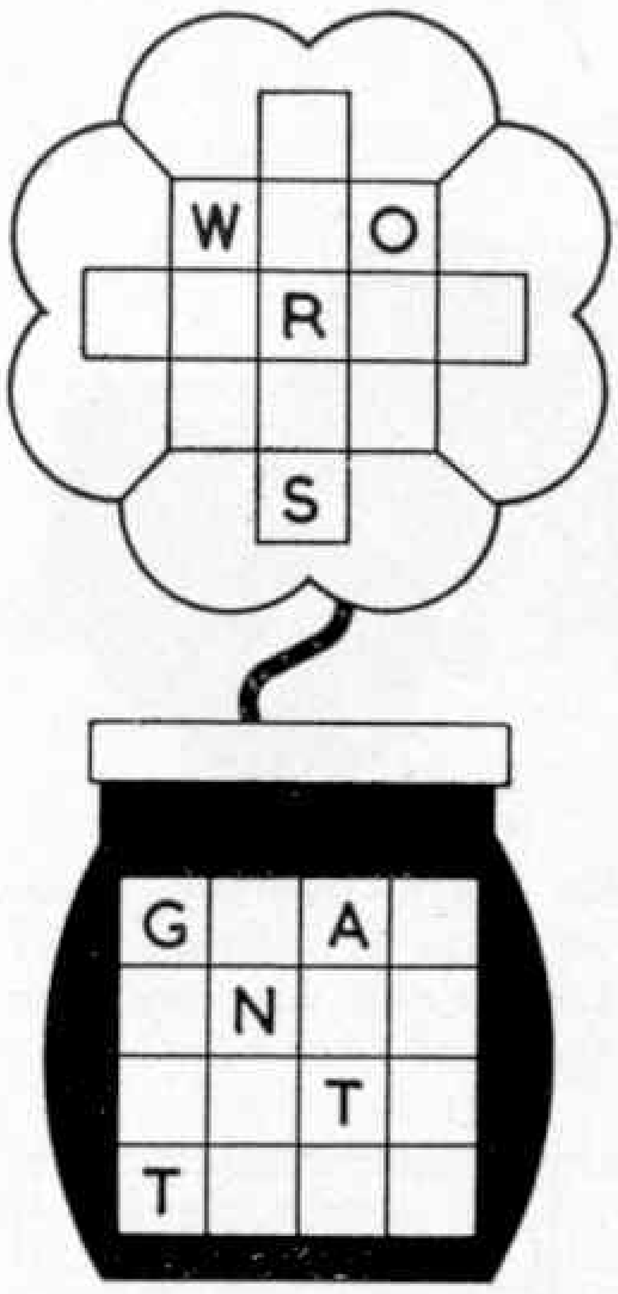


Fig. 1.

FLOWER

I bet you have never grown or seen a flower in a pot like this one. The flower pot is made up of a word square, and the flower of a word diamond. Our artist has given you a start in Fig. 1. Now let me see how quickly you can solve the two.

SAM LOFTY

Sam's full name is Samuel Lofty and one day while he was scribbling in his drawing book he turned out the jumbled mass of initials L and S seen in Fig. 2. How many of each are there?

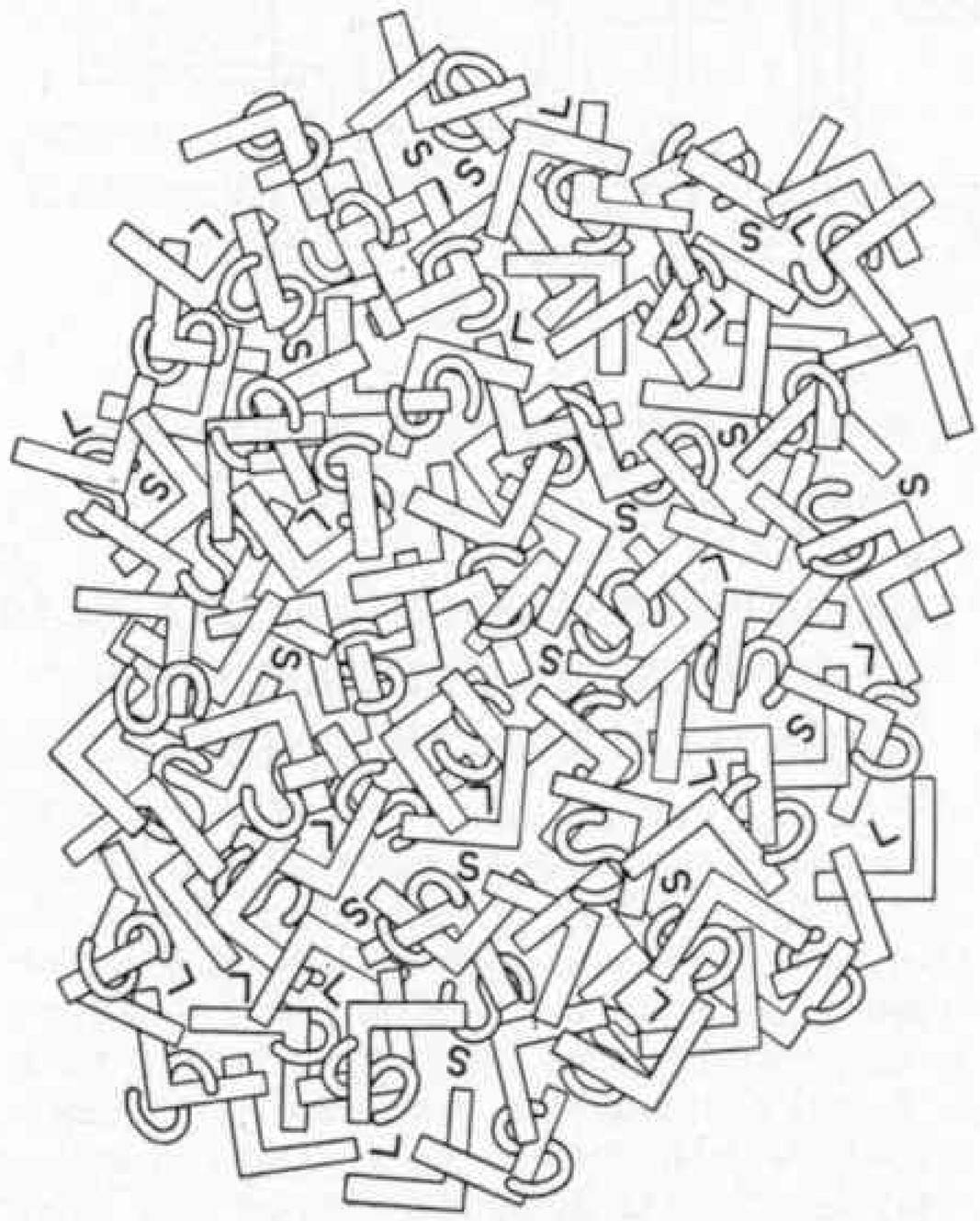


Fig. 2.

LADDER

Have you ever watched a window cleaner at work and seen him run up and down his ladder? Now here is your chance to see how quickly you can climb a ladder without even getting out of your chair!

Here is what you have to do. Look at Fig. 3. For each step up the ladder from TIME you take you must change one of the letters to make another word, until you reach the fourth step of the ladder with a word that contains none of the letters in TIME. Now reverse the process, using different words, so that by the time you reach the top of the ladder you will have changed back to the word TIME.

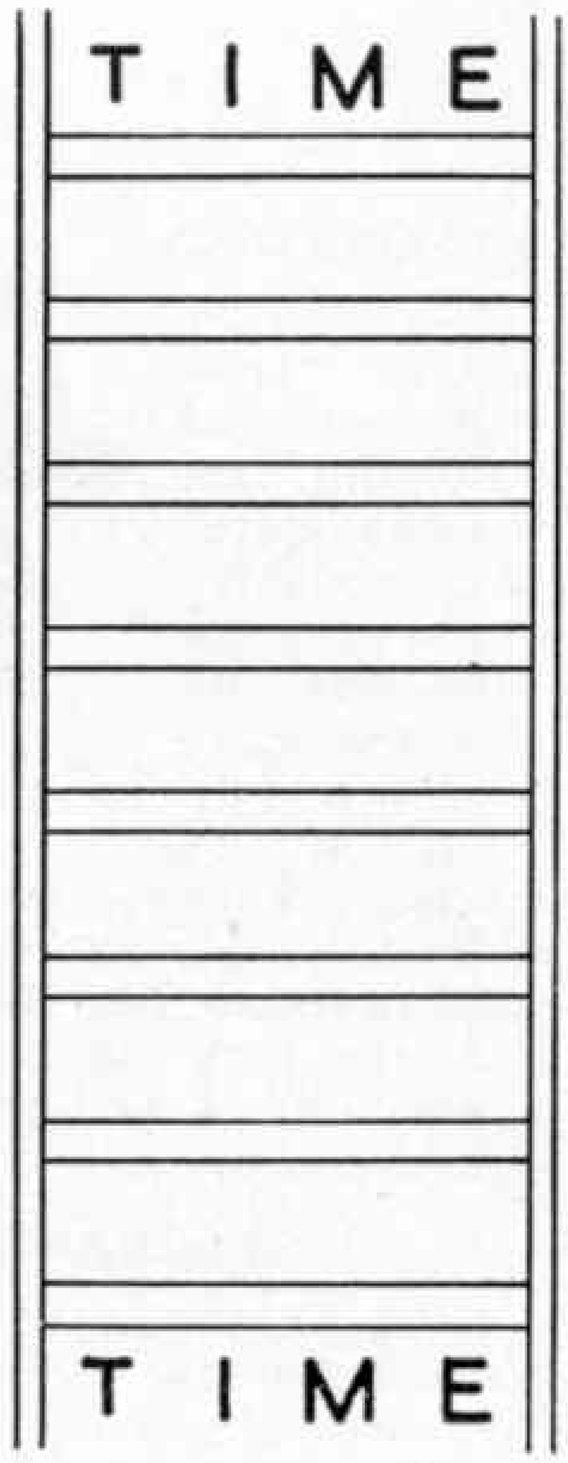


Fig. 3.

NUMBER TRICKERY

"Think of a number and add seven," said Sam.

"All right," said his father.

"Multiply your answer by two," said Sam.

"I've done that," said his father.

"Now subtract four," said Sam.

"That leaves forty-four," said his father.

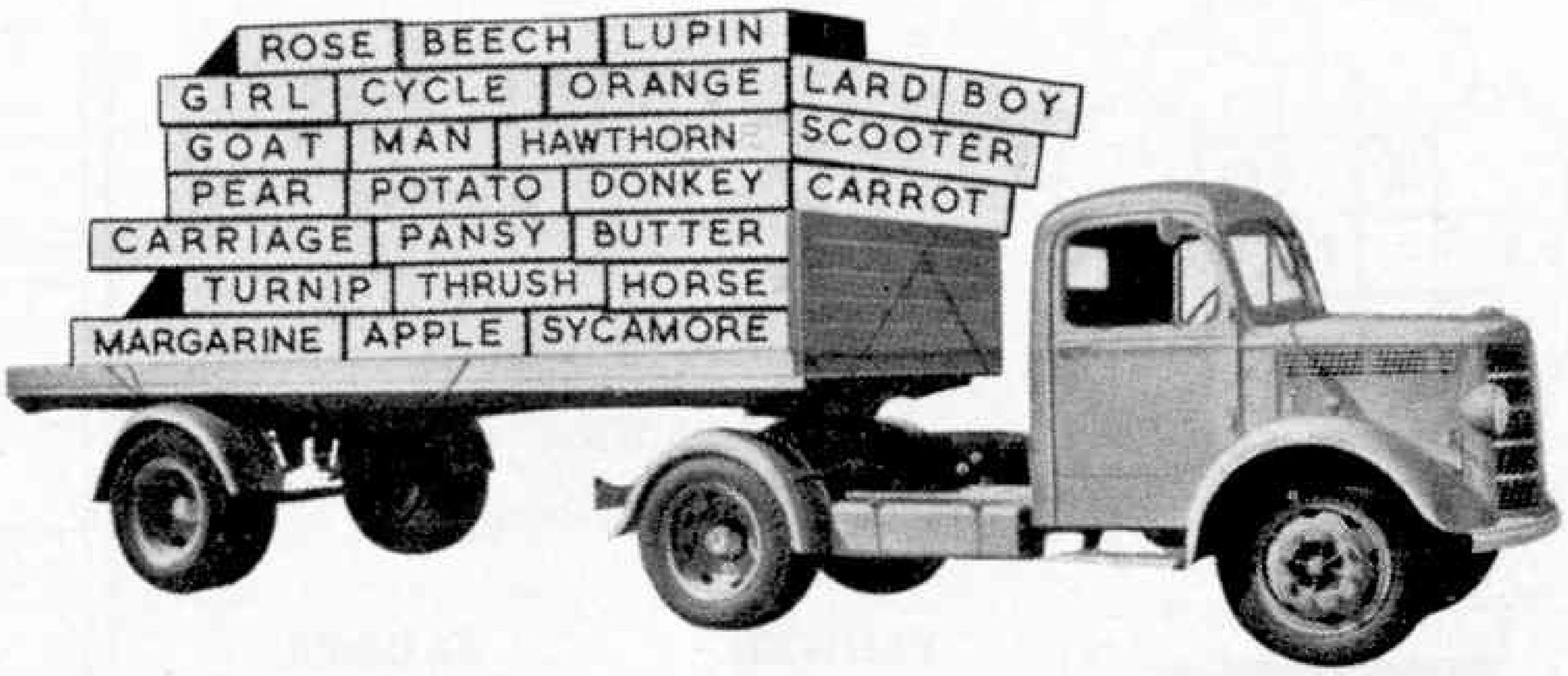
Then Sam said, "The number you thought of was seventeen."

Sam was right, but can you say how he arrived at the right figure?

RIDDLE-ME-REE

My first is in Gerald, but not in Billy;
My second is in Rose, but not in Milly;
My third is in Colin, but not in Don;
My fourth is in Mabel, but not in John;
My fifth is in Alice, but not in Anne;
My sixth is in Wendy, but not in Dan;
My seventh is in Noel, but not in Claude;
My eighth is in Roger, but not in Maud;
My whole is a lovable, nursery toy.

Fig. 4.



ODD ONE OUT

One day while Sam was out car spotting, *i.e.* making notes of car and lorry registration numbers, he saw the lorry shown in Fig. 4. It carried 25 boxes and all were named differently. He also noted that the names went in threes, like MAN, BOY and GIRL. Can you pick out eight threes from the names and so find which is the odd one out among them?

GEOGRAPHY LESSON

During a geography lesson Sam surprised himself by the discovery that he knew very little about places in the British Isles.

	A		M		U		H
B		I		H		O	
	K		G		E		S
D		W		B		R	
	O		T		E		D
R		C		D		L	
	H		N		L		N
B		C		S		E	

Fig. 5.

One of the questions he could not answer is illustrated by Fig. 5. Can you complete the words across, which are all names of places in the British Isles? If you can, you will discover that the letters in the diagonal from top left to bottom right form the name of something we all love.

RACING TRICYCLISTS

Now a very special tricycle track for our junior readers. Suppose you are a racing tricyclist and have to ride on a number of circuits that overlap each other, as shown in Fig. 6. From this aerial view of the course can you say how many tracks you will have to ride on?

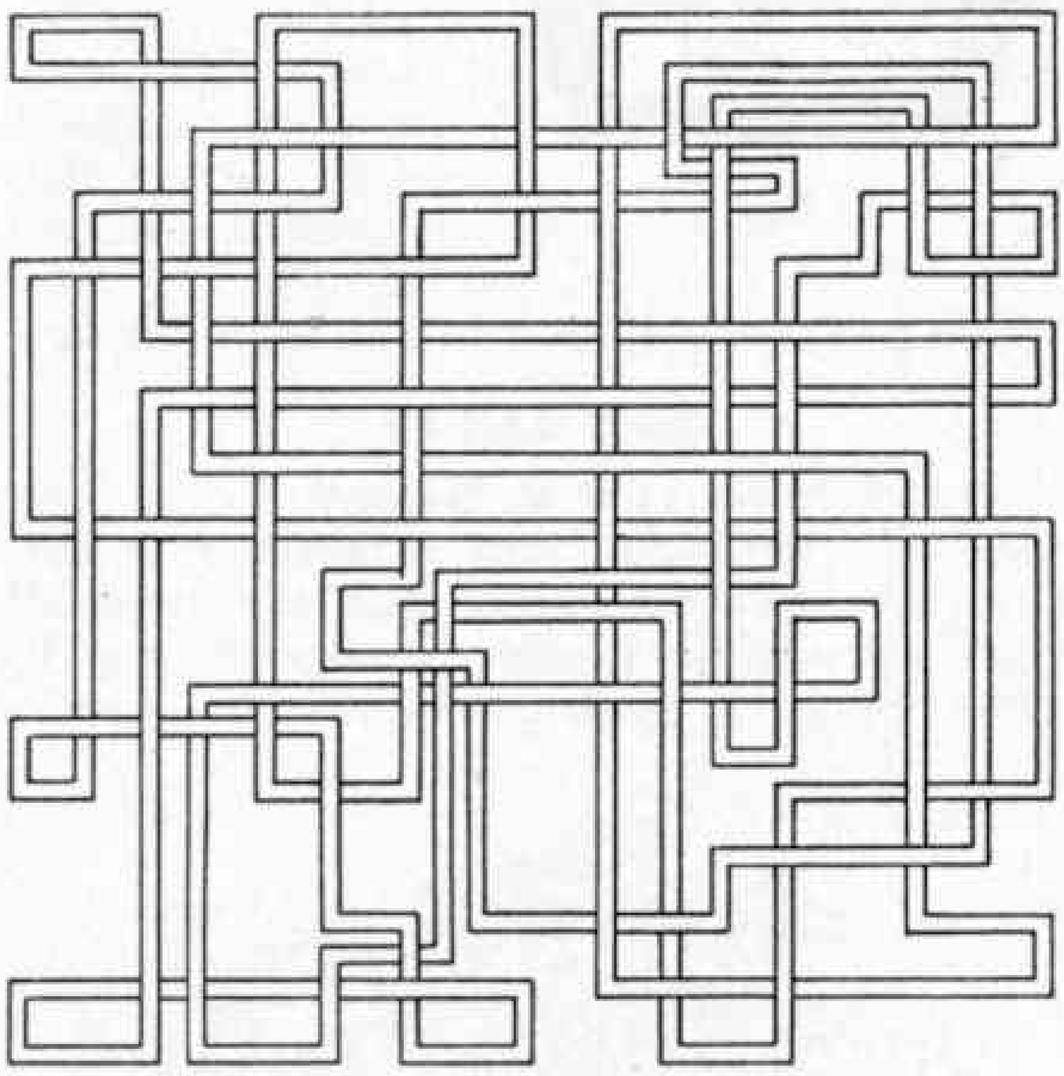


Fig. 6.

WANTS THE WHOLE ALPHABET

What a mess! I mean the jumbles of capital letters shown here:

CNETTYOMEANSEMEIIOOMENACSCAR

EOADEFRSUPERISUITEEFREHING

RDISAYSYOUEGOTABRONFOINOUROO

But you can make sense out of these by inserting somewhere in them all the letters of the alphabet in their correct order. In the first line you put in all the letters from A to K; in the second line those from L to S; and in the last the letters T to Z.

I feel certain that you can put all the letters in their correct places, but remember that you must keep the letters in their alphabetical order.

COAT OF ARMS

From the letters making up the Coat of Arms in Fig. 7 can you say what well-known sporting event it represents?

Fig. 7.

CONTINENTAL TOUR

Sam decided to spend his holidays this year on a cycling tour, and he made it a continental one. His bicycle, as you well can see from Fig. 8, is made up of a number of letters. These when sorted out spell the names of three of the many cities he passed through. Can you spot the cities? All the three places are in one country.

Fig. 8.

BROKEN WHEELS

Wheels often get broken, just like those you can see from Fig. 9, which have been broken in two. Sam did his best by sticking them together again, but unfortunately got them hopelessly mixed up. Can you unstick them and piece them together correctly, and then say how many different types of wheel there are?

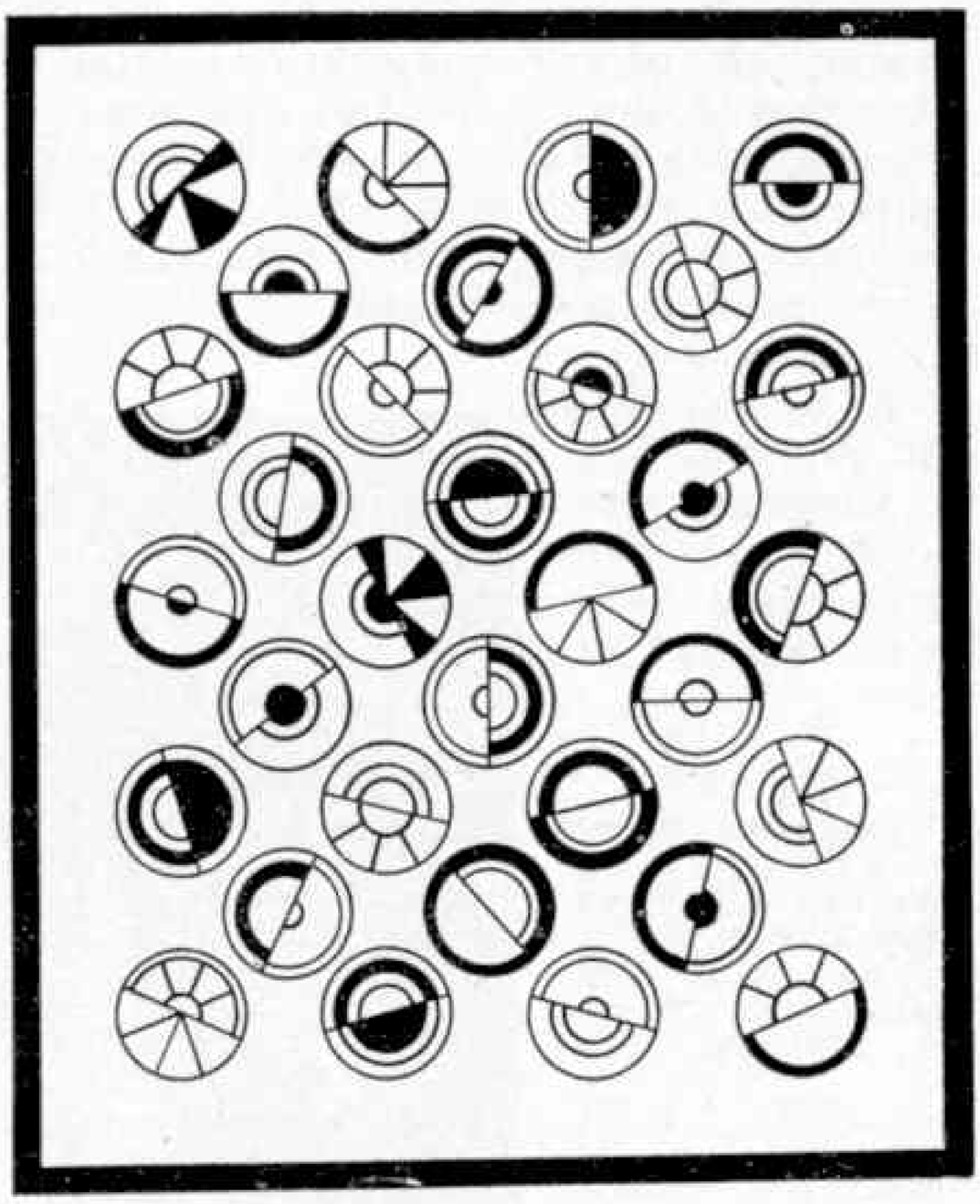


Fig. 9.

TRY THESE

Sam is very good when it comes to saying tongue twisters quickly. He can usually say them without making any mistakes at all. He delights in saying long ones and here is one of his favourites. See if you can say one sentence, or the whole of it, quickly without making a mistake.

Tom Tucker, the trainer, touched the terrible tiger's tail, then tied ten tags to the toy train. Tiddles, the tiger, tore the trainer's thick top-coat to tatters. Tom, terribly terrified, tried to throw the toy train towards Tiddles. Tom then tried to throw the tiger, though Tiddles' teeth tore Tom's thick top-coat. Tom tottered, then toppled towards the toy train. The tiger tried to titter.

DINKY NEWS

BY **THE TOYMAN**

Quick Fun For All

ONE of the best things about Dinky Toys is that they are ready to play with as soon as they are picked up. Many of us indeed are content to play with them in this simple way, and we find it great fun, especially the younger of us, who make the greatest use of our imaginations. But I think that in time most of us soon turn to arranging the models in simple settings representing scenes from real life. It is very easy to arrange simple but realistic scenes to suit almost any collection of Dinky Toys; very often indeed the real problem lies in selecting the most suitable scene from the vast variety of notions that crowd into our minds!

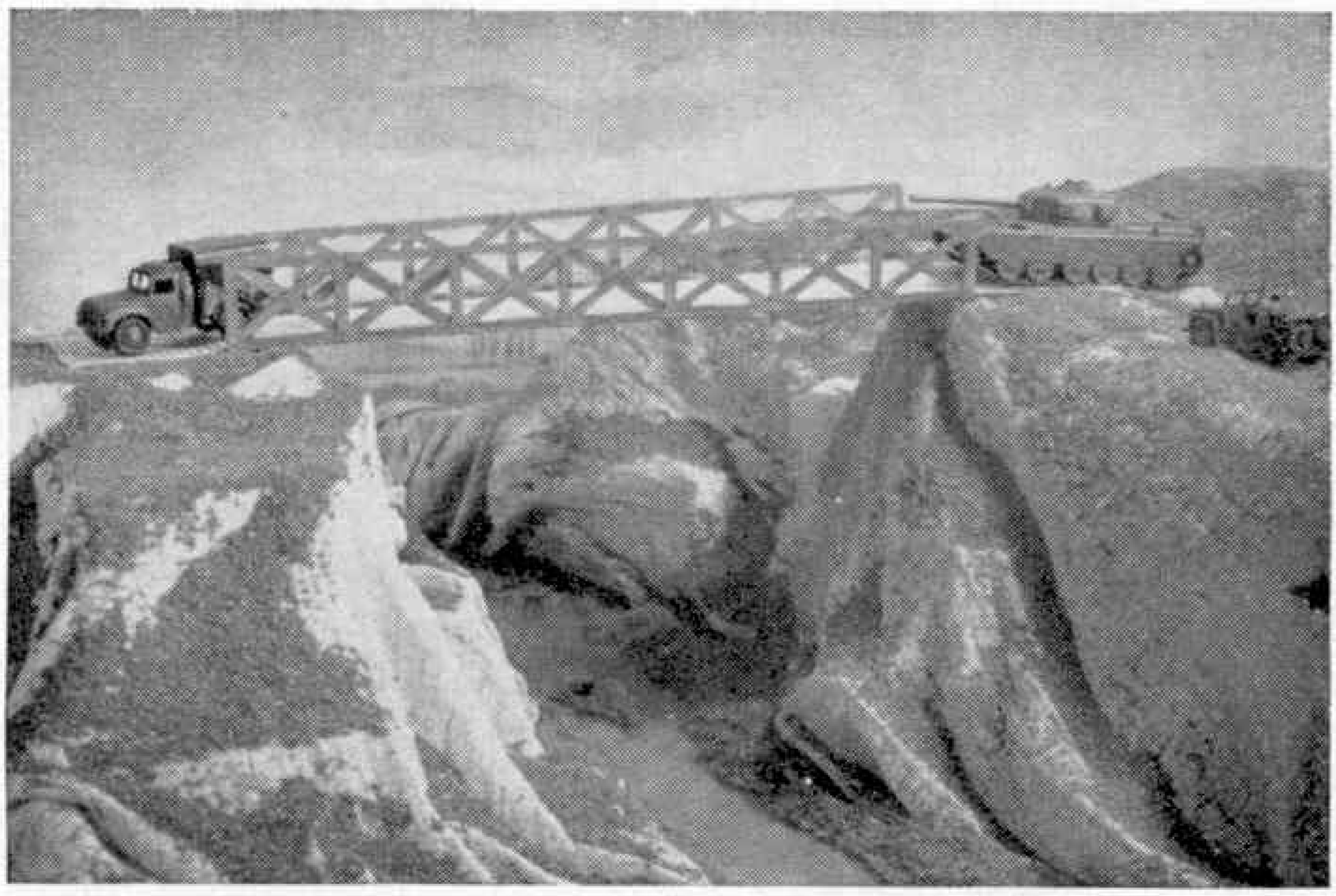


Fig. 1. A cardboard Bailey bridge, in a representation of rugged country, that is ideal for games with Dinky Toys Army models.

As regular readers of these pages know, I have often described complete layouts or sections of layouts in these articles. Some of these have been quite ambitious and have required a fair amount of space, so that they have taken a long time to assemble. For the best results these complete layouts should be permanent features mounted on a baseboard, and not all collectors may be able to arrange such a large display without perhaps becoming a nuisance to other members of the household! But if you happen to be one of those who do not enjoy the privilege of a large playroom of your own, there is no need to give up the idea of making attractive settings for your Dinkies. Endless pleasure can be obtained from a small temporary layout arranged on any handy table, or even on the floor of the spare room or your own bedroom. Such layouts are easily put together and—this is really important!—they have the great advantage that they can be altered quickly and easily when a bright new idea comes to mind. And that is worth thinking about by all Dinky Toy enthusiasts.

Recently I made up two scenes of this kind and pictures of them are shown in these pages. I think you will agree that their temporary nature does not limit their realism and play value.

Very often it is best to base a temporary layout on one particular item and then make this the centre-piece of the scene. This is the plan I adopted in designing the layout shown in Figs. 1 and 3, in which I wished to manœuvre vehicles included in the new Dinky Toys Army equipment. For the centre-piece I made a simple cardboard structure representing a Bailey bridge. This was very easily formed from a strip of stout cardboard cut out to represent the side girders. The cut out sides were then bent up as shown, and this gave me a bridge strong enough to carry several Dinky Toys models.

There must be something under a bridge, and I thought a river flowing through a deep cutting in rocky country would be a good thing to have. The "river" was simply a piece of glass placed over dark

Fig. 2. A simple street layout that is easily built. The article on these pages explains how.

coloured paper, and the rocky sides of the cutting were made by draping a piece of muslin over blocks of wood and cardboard boxes of varying sizes. If the muslin is a dark green or brown colour so much the better, but if you have only a white piece it can be sprinkled with dyed sawdust after it has been draped over the blocks, and this will give the effect of rough and uneven ground.

Incidentally, dyed sawdust is good stuff to use in almost every Dinky Toys scene. Lay in a good stock of it. You will find it really handy for scene making. All you need to make it is a few handfuls of ordinary sawdust, which you can get from any sawmill or joiner. It is easy to colour with one of the many household dyes.

It is surprising how much fun can be obtained from a simple scene of the kind I have described. Rescue work up the steep faces of the "cliffs" that flank the stream, realistic battles for the possession of the bridge—these and many other fine ideas will occur to you and to the friends who join in the fun.

My next scene, shown at the head of the page, represents a setting very different from the one already described, for it is a typical road section on the outskirts of a small town. You might think that a town scene is rather too difficult for you to have a go at owing to the number of buildings required. Believe me, this isn't so at all. I am quite sure that you will be able to make very good copies of all the simple buildings I used in my scene.

Actually only two or three complete buildings are required to form the foreground of the layout. Those in the background need only represent the fronts of houses or shops, as in the case of the row of shops seen in my picture. These shops have a front and half a roof only! A bit of a swindle perhaps, but quite in order for a temporary game.

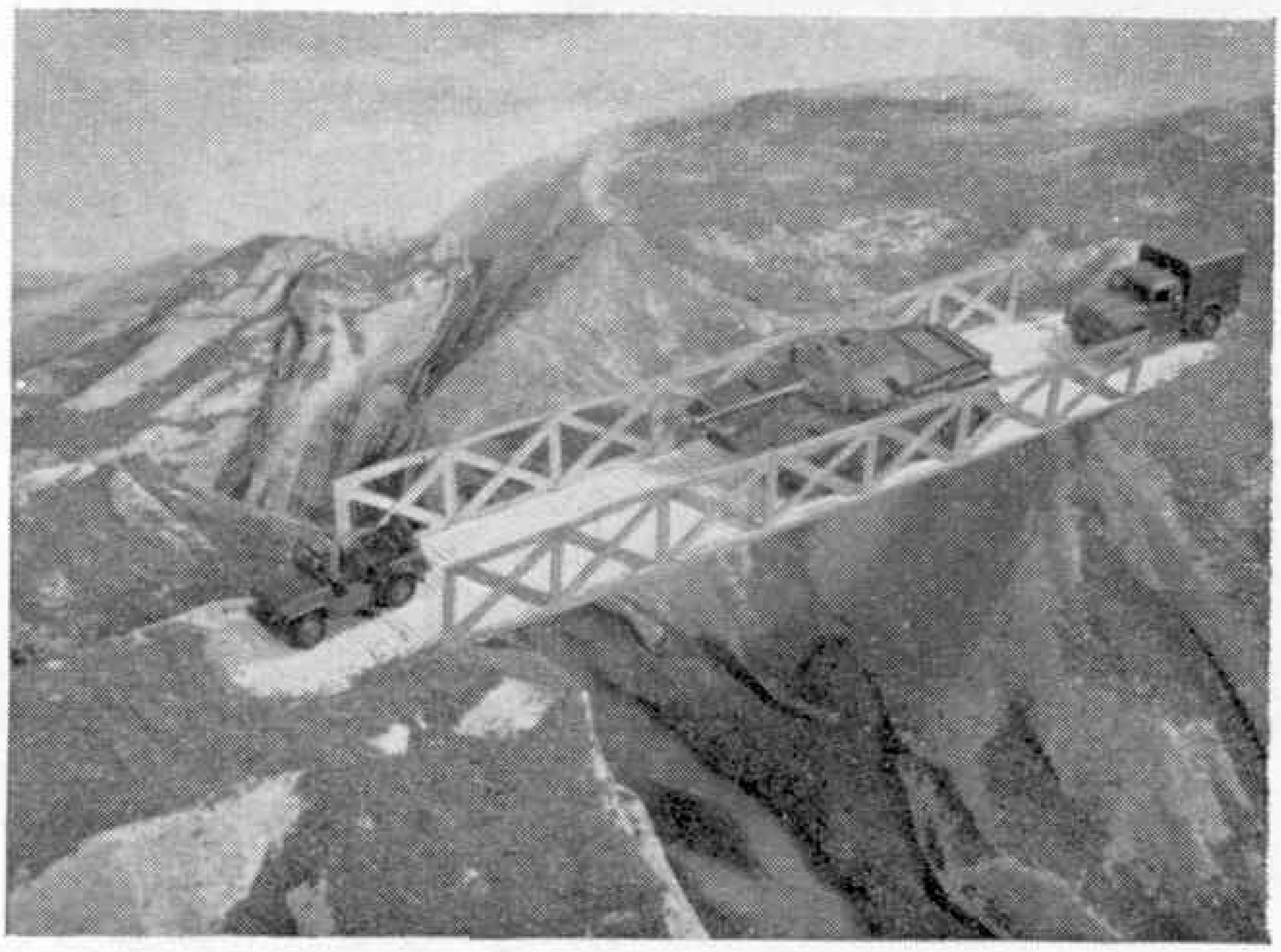


Fig. 3. A bird's eye view of traffic over our miniature Bailey bridge.

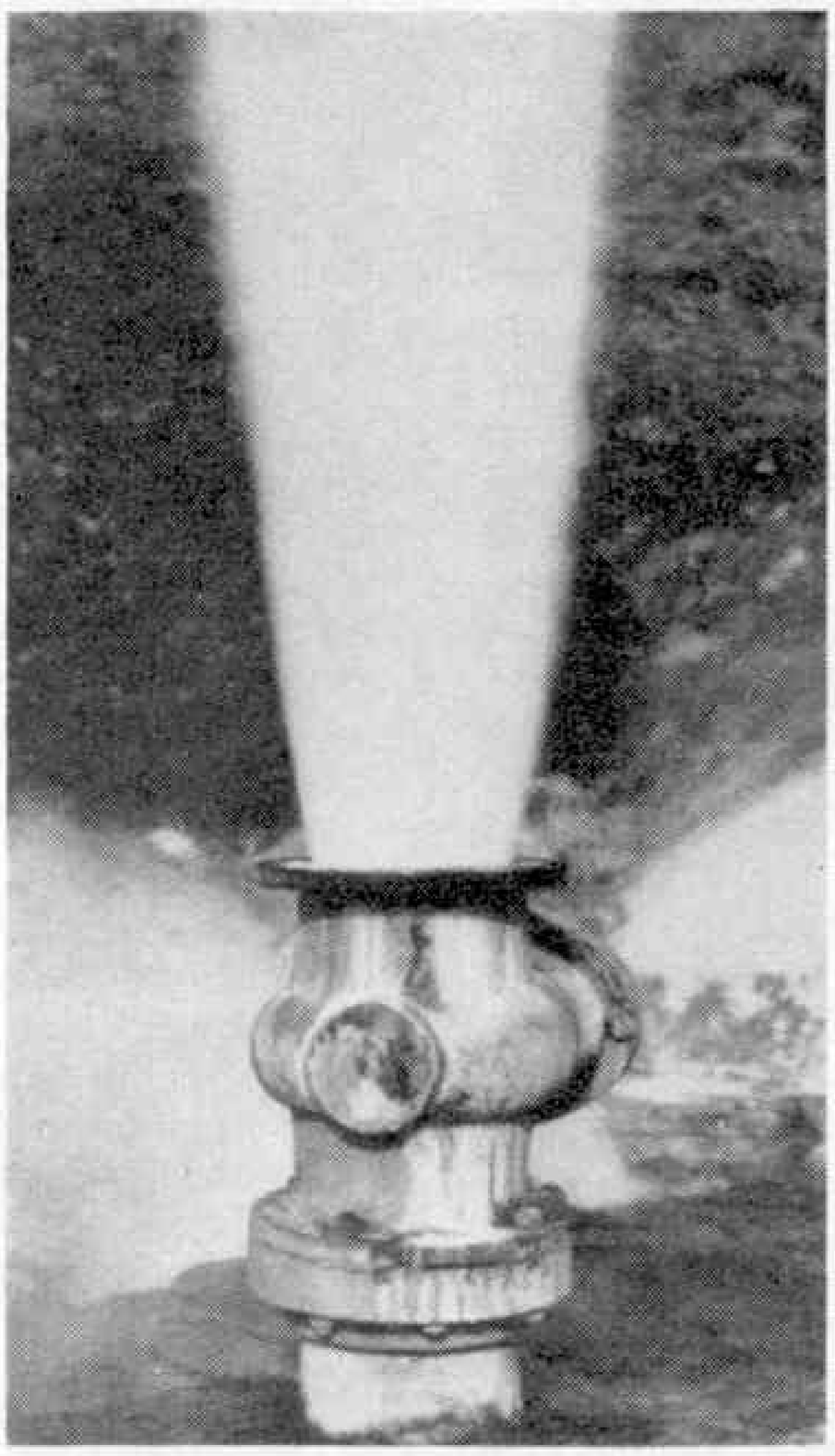
Volcanic Steam for Industry

A New Source of Heat and Power

By F. Illingworth

A NEW power is being released to drive industry—the stuff of volcanos. In Iceland, industrial plants have been powered with volcanic steam, which engineers tapped rather as they would oil. In New Zealand geologists and engineers are experimenting near Rotorua, 50 miles from the steaming valley of Wairakei, where molten power lies deep in the earth; the Japanese, with American aid, are working out plans to turn volcanic power into electricity.

And in Italy engineers have "struck steam" at more than 50 places in the Lardarello Valley. Six centuries ago the poet Dante made this valley of burned earth and bubbling lava famous in his *Inferno*. Today it is criss-crossed with steam pipe lines, dotted with condensers resembling giant hour glasses and with power houses, one of which is producing electric power in quantity equal to that from a hydro-electric station costing £15,000,000.



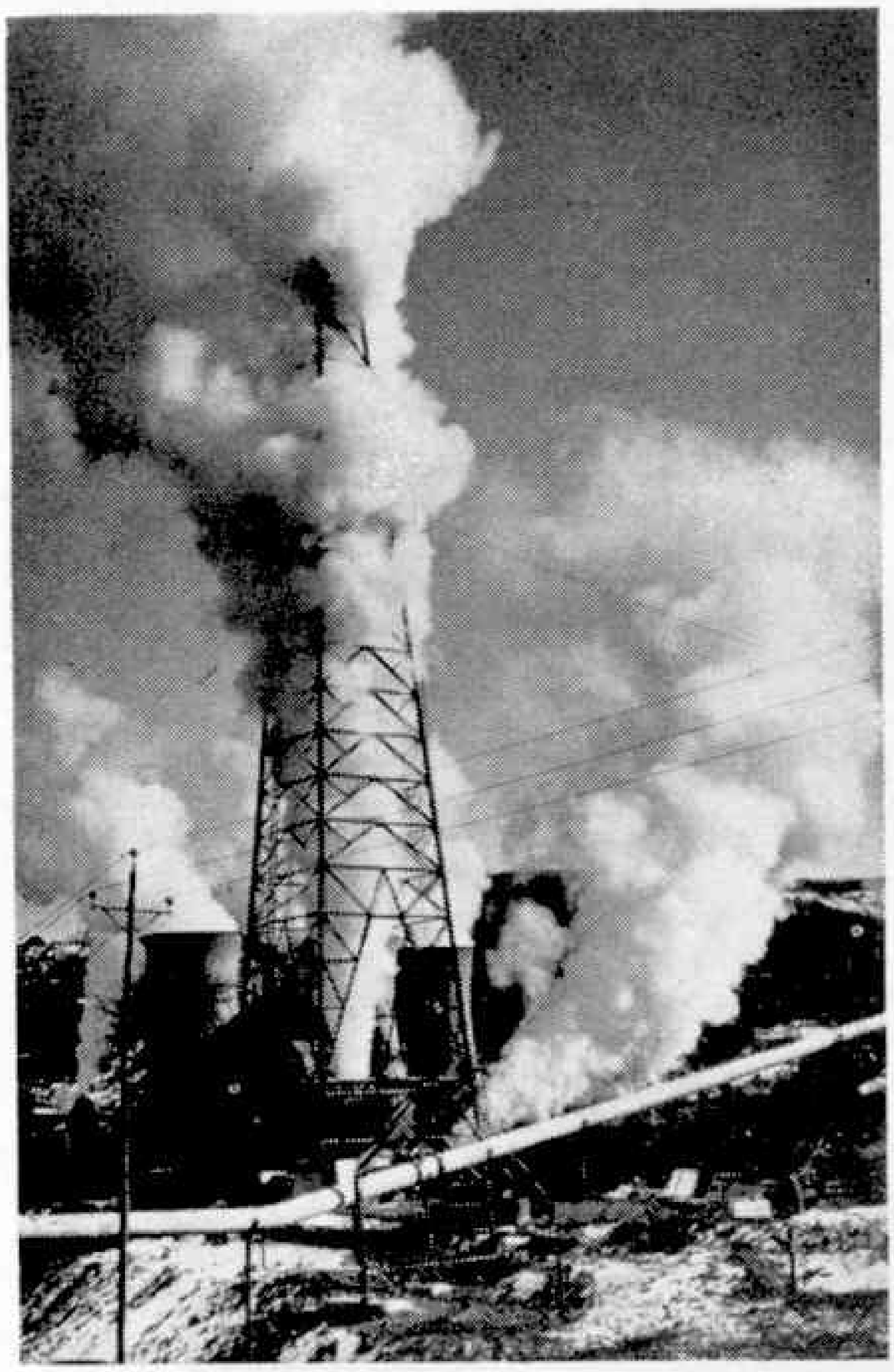
The first roar of volcanic steam. A fierce jet tapping volcanic power in Iceland.

The use of volcanic power for the provision of electricity is an answer to dwindling supplies of oil and coal. It could alter the balance of power, beggar rich nations, and raise poor countries to industrial wealth. For the birth of the Volcanic Age would undoubtedly see many a country, now predominantly agricultural because it lacks natural supplies of fuel, turn from agriculture to industry. The incalculable volcanic resources of Japan, Java, Sumatra and Borneo could be used to develop the industrial capacity of the Far East; and Britain, Germany and other of today's great industrial nations who lack sources of volcanic power might not be able to compete in the new circumstances.

The success of the experiment in Italy's Lardarello Valley suggests that volcanic power will be utilised in all countries were subterranean steam is available. The approach to the valley is beautiful. Two miles from "The Valley of Hell" one can hear a roaring like the sound of distant surf—the hiss of volcanic power in a dead valley plumed with writhing steam. Here, for 75 square miles, the land is burned bare, white with drifting steam, hot with gusts of sulphureous air, loud with the voices of a hundred steam jets. You hear the voice of one jet bigger than its neighbours. It is about two feet in diameter, and shoots from the earth at 1,000 feet per second. Pipes have been laid to a new power station from this great jet.

Boring for volcanic steam is similar to boring for oil. Water is poured into the bore-hole and pumped out as "mud." Engineers on this particular bore expected that the "mud" would begin to grow hot at a depth of 2,300 ft. But before the drill had reached 1,800 ft. the mud was coming up boiling.

"Better withdraw the drill and fill the bore with water," said the engineer in charge of the rig when steam began to seep through. But not even the immense weight of a column of water 1,800 ft. deep was enough to restrain the power surging to escape. Scalding mud and white-hot rock roared out with an explosion heard 15 miles away; and in



In the Lardarello Valley, in Italy, volcanic steam is now being used for generating electricity on a large scale. One steam jet that has been harnessed is about two feet in diameter and shoots out of the subterranean depths at 1,000 feet a second.

its wake came the steam jet, terrifying in its power. Terrifying to be sure! Just the same, it was harnessed and led along pipes to new generators.

There is nothing new in the idea of using volcanic steam for power. Years ago it was suggested that tunnels be driven into the heart of Mount Vesuvius. More recently, in 1904, an Italian engineer harnessed a natural steam jet to a turbine. Thousands of people came to see the result—a dull glow from six electric bulbs! But Prince Ginori Conti, the then owner of the Lardarello Valley, saw big possibilities in the steam jets. He began to bore into the rock and in 1931 a drill broke into a subterranean bed of steam.

What happened then was repeated in Iceland after the last war, when engineers "struck steam" 800 feet down in the blue basalt rock at Krisuvik, near the capital.

"From beneath our feet came a roaring, rumbling sound like that when our volcano, Hekla, erupted in 1947," Gunnar Gunnarsson told me. "We all started to run when a jet of steam 250 feet jump out of the bore hole and threw the one-ton boring machinery so high that when it crashed down it broke through concrete twenty-eight inches thick."

Like the Krisuvik jet, that which leapt from the Lardarello Valley in 1931, it roared for weeks before engineers could cap it. Subsequently, the valley came under the Italian State Railways; more capital became available and drilling teams went to work at a dozen or more points.

Today £2,000,000 is being spent on the development of the Lardarello Scheme, £1,300,000 of which originated in Marshall Aid under the European Recovery Programme. Five condensers have been completed, a sixth is now being built, and drilling for more steam is being pressed ahead.

Volcanic steam originates in the seepage of rain and sea water into the hot rock around the earth's fiery core, or so it is thought. Some of it escapes through natural clefts. But it has not proved possible to harness the steam from natural clefts—hence the need for boring.

The steam provides not only power but valuable chemicals. After passing through the power stations it is led through chemical plants where ammonia, sulphur and boric acid are extracted.

The Lardarello jets (*Continued on page 614*)

The Great Geyser in south-west Iceland is a natural jet indicative of the country's underground source of power.

Meccano Synchronous Electric Clock

THE Electric Clock shown in Fig. 1 is driven by a synchronous motor, and apart from the wire used for the motor field windings it is made entirely from Meccano parts. The clock operates from a Meccano 20-volt Transformer, and its accurate timekeeping and neat appearance make it an unusually interesting subject.

The framework for the clock mechanism is made by bolting two 7½" Strips 1 across a 5½" × 3½" Flat Plate. Two further 7½" Strips are connected to the Strips 1 by 1½" × ½" Double Angle Strips, and a 3½ × 1½" Flat Plate 2 is bolted in position. Two 5½" Strips 3 are connected to the 5½" × 3½" Flat Plate by 1½" × ½" Double Angle Strips, and the ends of the Strips are joined by 3½" Strips. A 3½" × ½" Double Angle Strip 4 is bolted between 1½" Angle Girders fixed to the 5½" × 3½" Flat Plate, and three 3½" Strips 5 face-to-face are bolted across the Strips 3. Two 1½" Flat Girders 6 are attached to 1½" × ½" Double Angle Strips fixed between the Strips 3 and the 5½" × 3½" Flat Plate. Two 3½" Strips 7 face-to-face are bolted across the Strips 3.

The rotor consists of two Bush Wheels, each fitted with eight Rod and Strip Connectors arranged radially. It is very important to space the Rod and Strip Connectors accurately, so that the angles between them are exactly the same in each case. The Bush Wheels are fastened on a 2½" Rod 8, which is supported in the 5½" × 3½" Flat Plate and the Flat Plate 2. The bearings for the Rod are strengthened by two 1½" Strips bolted to each of the Flat Plates. The inner Bush Wheel is placed with its boss facing the 5½" × 3½" Flat Plate, and it is spaced from it by three Washers. The second Bush Wheel is then fixed so that its Rod and Strip Connectors just touch and are exactly parallel to those of the first Bush Wheel.

The reduction gearing to the minute hand has a ratio of 45000:1 and is arranged as follows. A ½" Pinion is fixed to the inner end of the Rod 8, and it meshes with a 57-tooth Gear on a 2" Rod

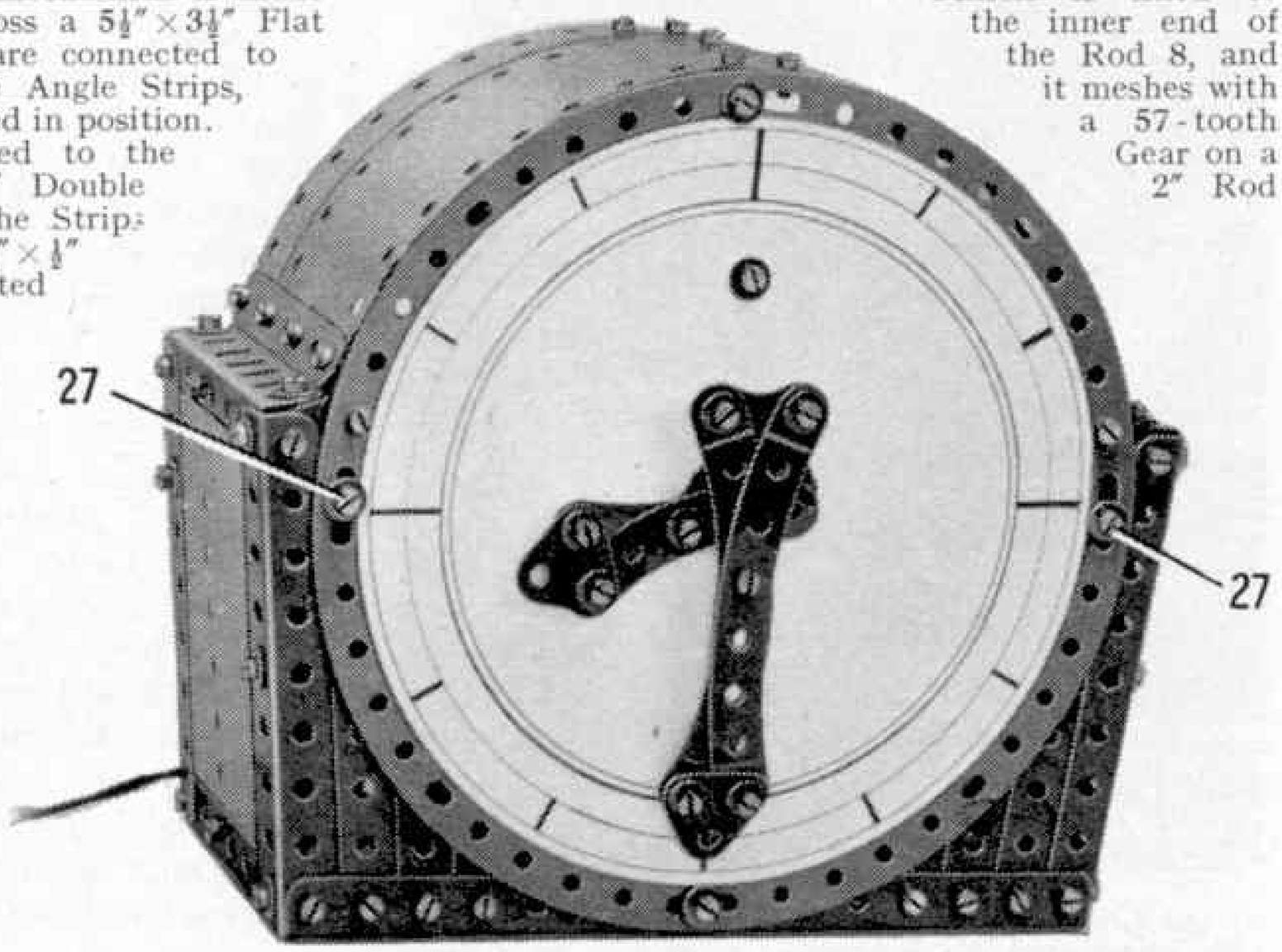


Fig. 1. This fine Electric Clock is operated by an easy-to-make synchronous motor, and is a good subject for the more experienced model-builder.

that carries a ½" Pinion 9. This meshes with a 57-tooth Gear on a 4" Rod 10, which is fitted also with a Worm 11. Two 3½" Strips bolted across the 5½" × 3½" Flat Plate strengthen the bearings for the 2" Rod and Rod 10. The Worm engages a 50-tooth Gear on a 4" Rod 12 supported in the Flat Girders 6. The slotted holes of the Flat Girders are used to adjust the mesh of the Worm and the 50-tooth Gear.

Rod 12 carries a Worm 13, and this drives a 50-tooth Gear 14 on a 1½" Rod mounted in the 5½" × 3½" Flat Plate and in the Strips 5. A ¾" Pinion is fixed on the 1½" Rod, and this engages a 50-tooth Gear 15 that is loosely mounted on a 2" Rod supported in a 1½" Flat Girder 16, the Double Angle Strip 4 and the 5½" × 3½" Flat Plate. A 1" Pulley fitted with a Rubber Ring is pressed against the Gear 15 to provide a light friction drive. This allows the hands to be turned without affecting the drive from the motor. A 1" Gear 17 is fixed on the same Rod as the Gear 15, between the Double Angle Strip 4 and the Flat Plate. The Gear 17 drives a similar Gear on a 4½" Rod 18, which carries the minute hand.

The drive to the hour hand is taken from a ¾" Pinion 19, fixed on the same Rod as the Gear 15. Pinion 19 drives a 50-tooth Gear on a 2" Rod supported in the 5½" × 3½" Flat Plate and in the Strips 7. The Rod carries also a ¾" Pinion 20, which is meshed with a 50-tooth Gear 21 on a 2" Rod. A ½" Pinion on the same Rod engages a 57-tooth

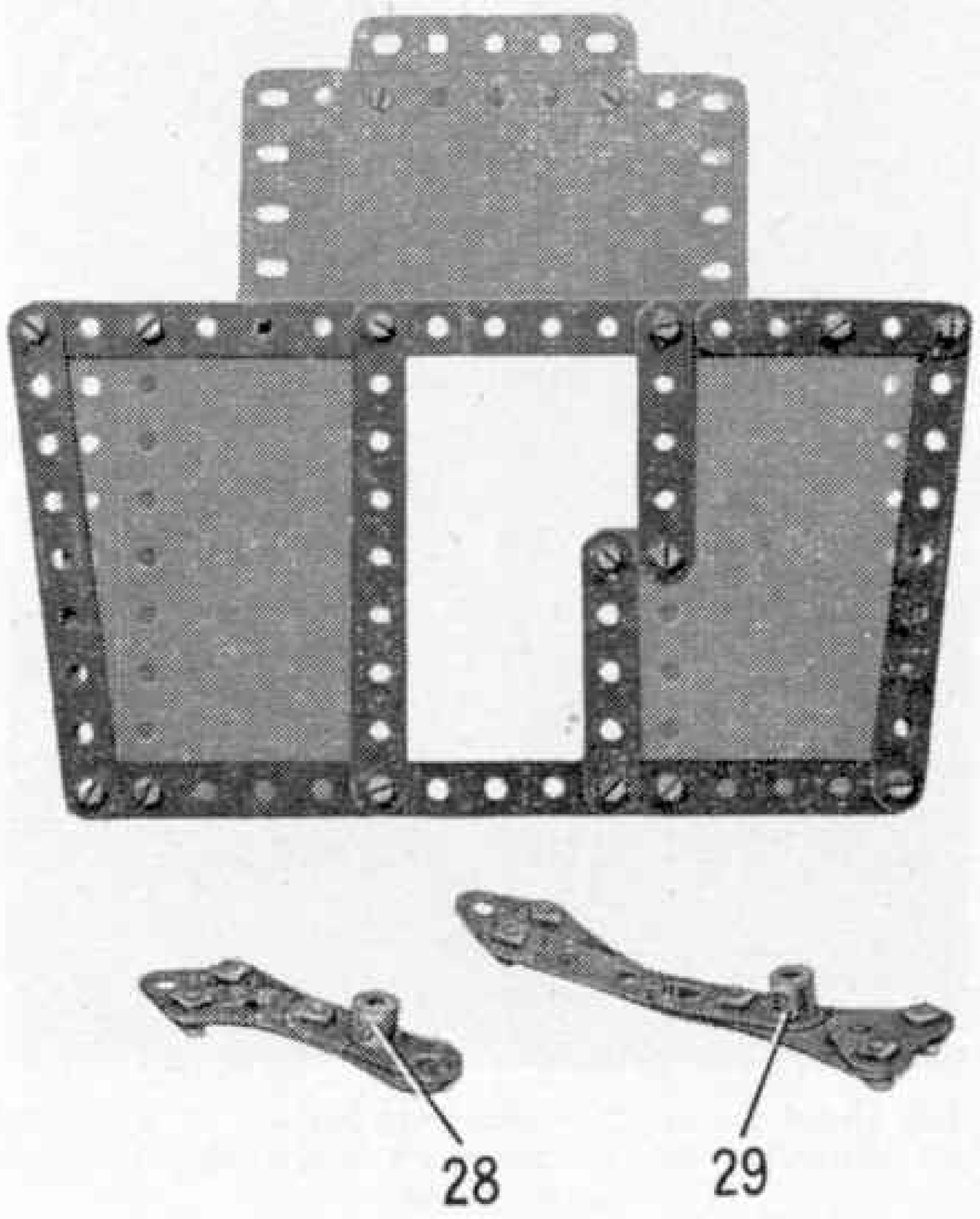


Fig. 2. The removable back of the clock case and the hands are shown clearly in this view.

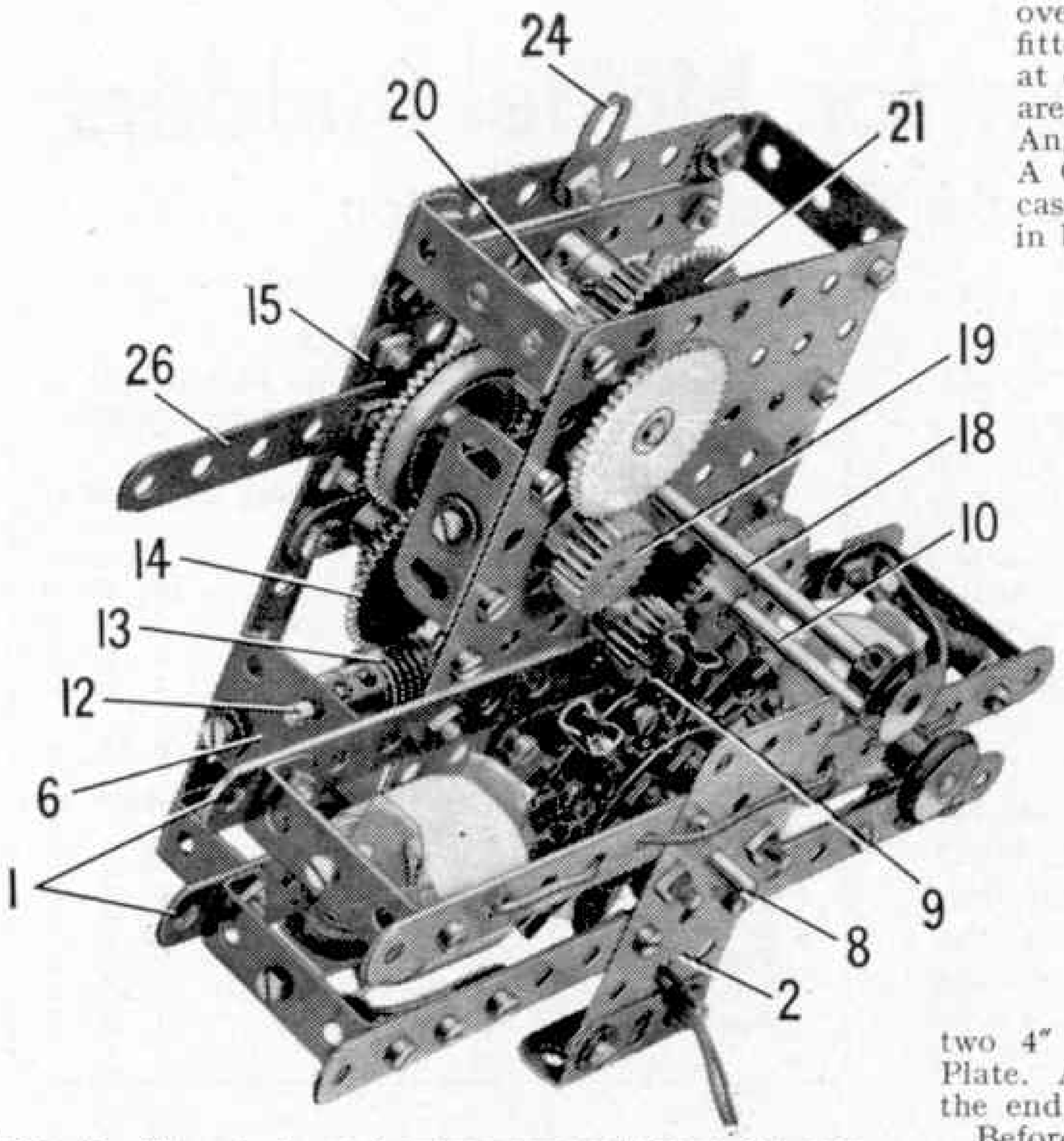


Fig. 3. The clock mechanism removed from its case, showing details of the field coil mountings and the rotor of the synchronous motor.

Gear 22. This Gear is gripped in a Socket Coupling 23 that is free to turn on Rod 18.

The Rods used in the mechanism are held in position by Collars where necessary, and Washers are used to space the Gears and Pinions so that they engage accurately. It is essential to make sure that all the moving parts of the mechanism are perfectly free running.

Each of the two field coils consists of twelve 2" Strips connected by ¾" Bolts, which serve also to secure two Angle Brackets at one end and two Double Brackets at the other end. The 2" Strips and the Brackets are insulated by a layer of paper. Each coil is wound evenly with approximately 65 yards of 36 S.W.G. Double Cotton Covered Wire. The completed coils are attached by the free lugs of the Double Brackets to the 1½" × ½" Double Angle Strips bolted between the 7½" Strips, so that their inner ends are as close as possible to the rotor.

The coils are wired in series; that is, the inner end of one coil is connected to the outer end of the other coil. The two remaining ends of the coils are attached to a length of light flex, which is used to connect the clock to a 20-volt Transformer. The joins should be covered with insulating tape.

The base of the clock case consists of two 5½" × 3½" Flat Plates overlapped seven holes. The Flat Plates are fitted at the front with a 7½" Angle Girder, and at each side with a 3½" Angle Girder. The sides are 4½" × 2½" Flexible Plates, edged by 4½" Angle Girders, 4½" Strips and 3½" Angle Girders. A Circular Strip is attached to the front of the case as shown, and the lower corners are filled in by 2½" and 1½" Strips and 1" Corner Brackets.

The top of the case consists of four 5½" × 2½" Flexible Plates. These are attached to the sides and to the Circular Strip by Angle Brackets. The dial is made from cardboard, and is bolted to a Fishplate 24 and a 2" Strip 25 fixed to the front of the clock mechanism. When the mechanism is inserted in the case the end holes of 2½" Strips 26 are passed over the shanks of ½" Bolts 27. These Bolts are passed through the Circular Strip, and each is fitted with four Washers and a nut. Further nuts are tightened on the Bolts when the Strips 26 are in place. The back is fastened in place by bolts screwed into Threaded Bosses attached to the sides of the clock case.

The hour and minute hands are shown separately in Fig. 2. The hour hand consists of two 2½" Curved Strips bolted to a 1" Triangular Plate, and fitted with a Double Arm Crank 28. The boss of this Crank is gripped in the Socket Coupling 23. The minute hand is made by bolting two 4" Stepped Curved Strips to a 1" Triangular Plate. A Crank 29 attached to the hand is fixed on the end of Rod 18.

Before starting the motor a drop or two of good quality light machine oil should be applied to the bearings and to each moving part.

To start the clock the rotor must be spun at almost exactly its normal running speed, which is 750 r.p.m. With practice the speed can be gauged quite accurately, however, and once it is started the clock will run indefinitely and keep excellent time.

A list of the parts required to build this model will be supplied by the Editor on request.

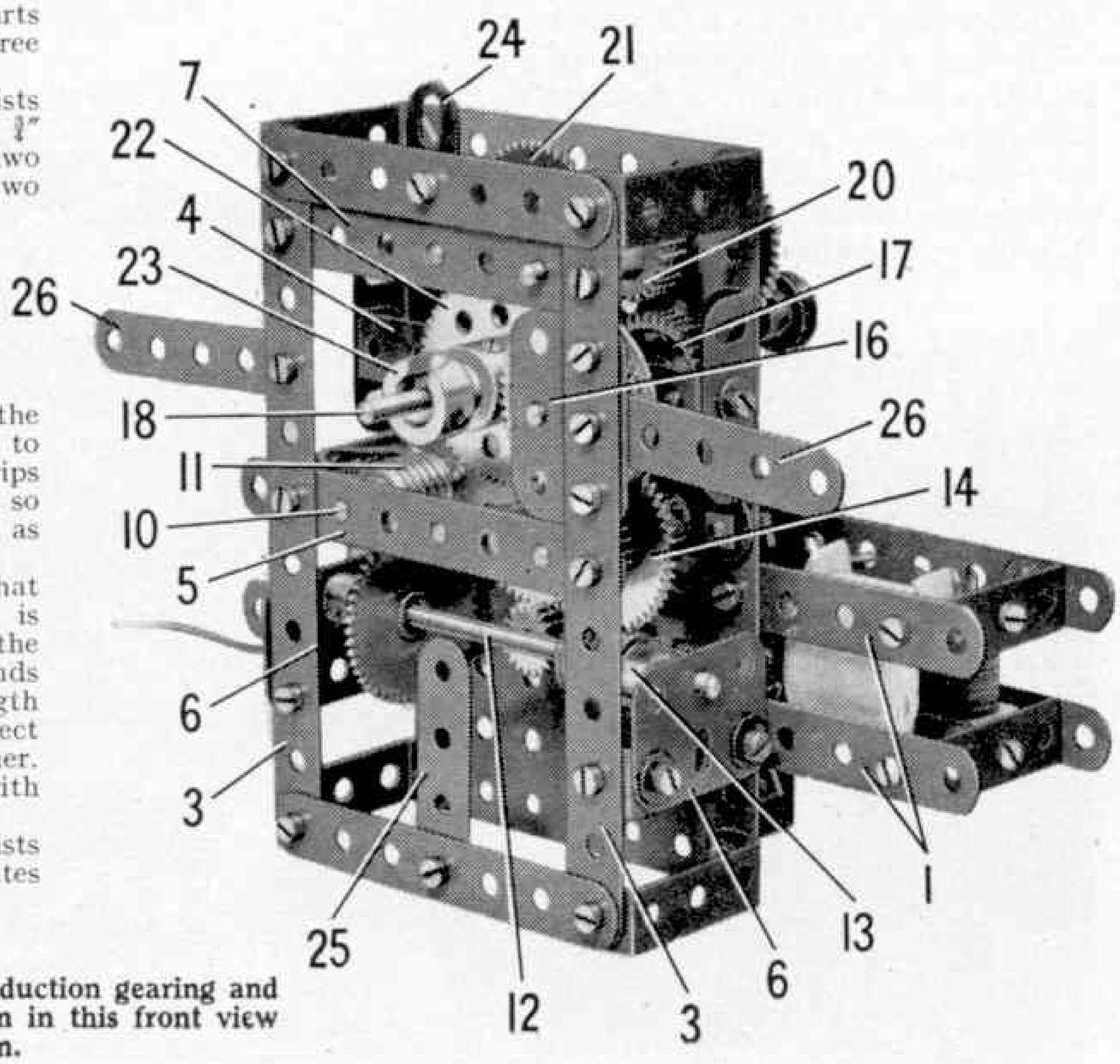


Fig. 4. The arrangement of the reduction gearing and the drive to the hands can be seen in this front view of the mechanism.

Valuable Prizes for Model-Builders

The "Jones KL 66 Crane" Competition

LAST month we gave full details of a special model-building Competition in which George Cohen, Sons and Company Ltd., in conjunction with Meccano Ltd., are offering valuable prizes for the best Meccano models of the Jones KL 66 Mobile Crane, an illustration of which appears on this page. This Contest will remain open until 28th February next, so that there is still time for model-builders to prepare and send in their entries if they have not yet done so.

In entering this Contest competitors are not restricted to any particular size of Outfit or number of parts in building their models, and the Contest is open to model-builders of all ages living in any part of the world. A full list of the prizes to be awarded is given in the panel on this page.

Full details and illustrations of the KL 66 Mobile Crane were given in the November issue of the *M.M.*, but the following brief summary of its chief features may be helpful.

The Crane is driven by a Diesel engine that provides power for travelling, load hoisting, slewing of the jib and superstructure and derricking or luffing of the jib. From the engine the drive is taken through a clutch to a 3-speed gear-box, the output shaft of which is connected by a flexible coupling to a main drive transmission unit. From this, separate drives are taken by flexible couplings to the jib derricking drum and to the load hoisting drum. Separate clutches and brakes are provided for each of these drums.

The transmission unit provides also two other drives, one to the crane undercarriage wheels and the other for slewing the jib and superstructure. The undercarriage wheels are driven through a differential, the half-shafts of which carry sprockets that drive the road wheels.

When you have completed your model the next thing is to obtain either photographs or drawings of it. You should then write a short description of the model and send this with the illustrations to *Jones KL 66 Crane Competition, Meccano Ltd., Binns Road, Liverpool 13.*

THE PRIZES

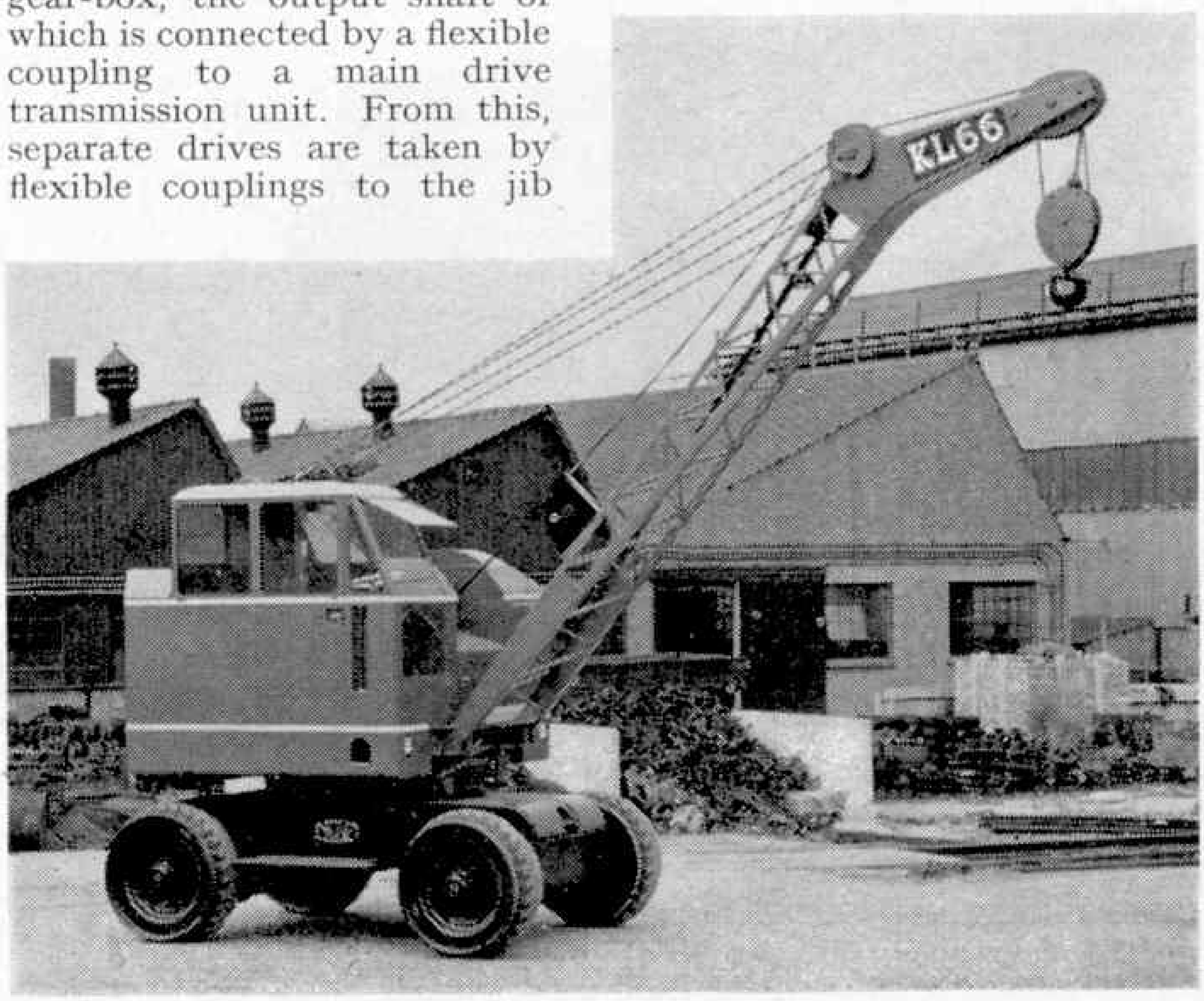
The following Cash Prizes will be awarded in Sections A and B of the important model-building Competition announced on this page.

Section A (for competitors under 15 years of age on 28th February 1955).

	£	s.	d.
First Prize, Cheque for	10	0	0
Second Prize, Cheque for	5	0	0
Third Prize, Cheque for	3	0	0
Fifteen Prizes, each of a Cheque for	1	0	0
Fifteen Prizes, each of a Postal Order for	0	10	0

Section B (for competitors over 15 years of age on 28th February 1955).

	£	s.	d.
First Prize, Cheque for	15	0	0
Second Prize, Cheque for	8	0	0
Third Prize, Cheque for	5	0	0
Fifteen Prizes, each of a Cheque for	1	10	0
Ten Prizes, each of a Cheque for ..	1	0	0



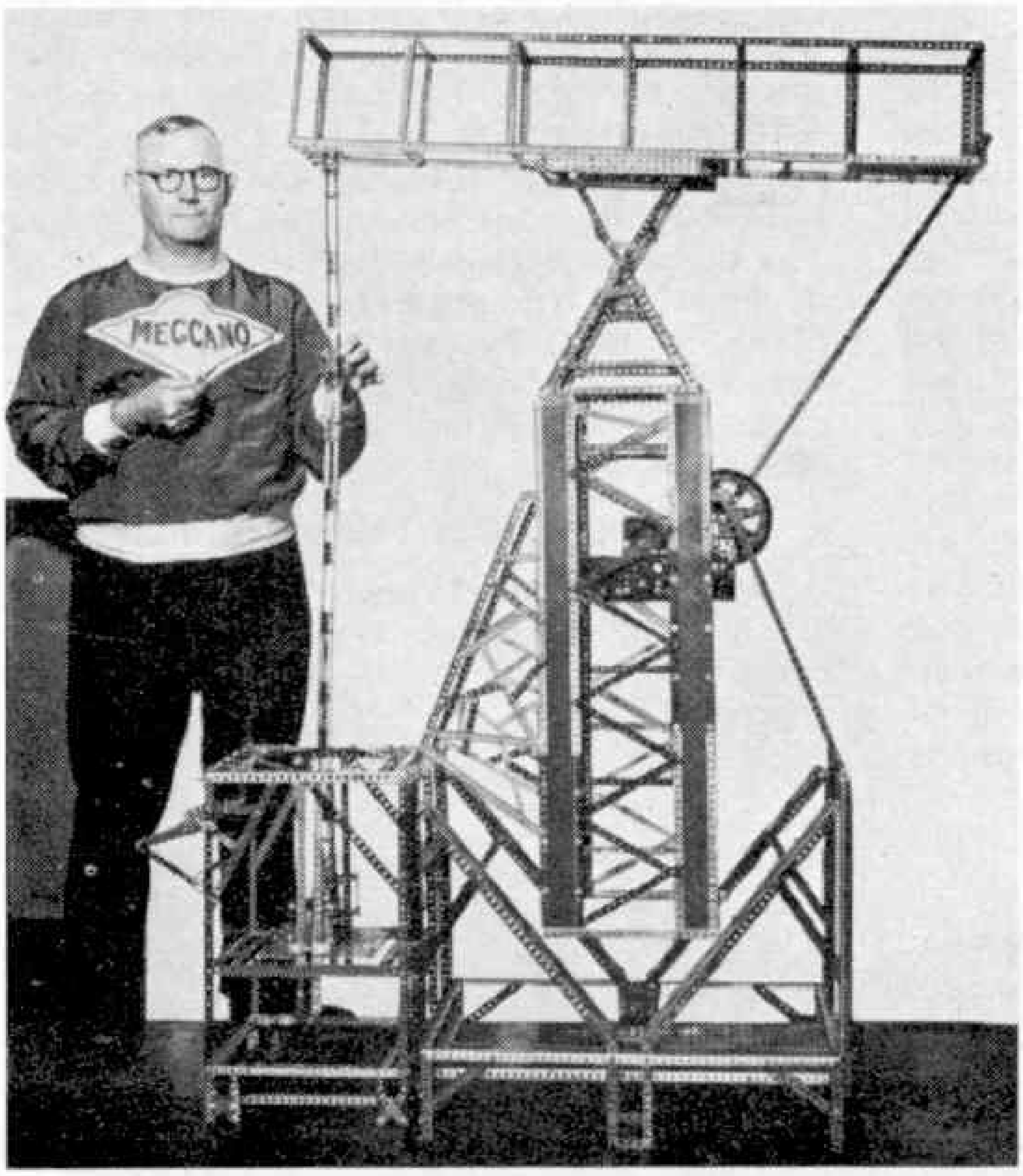
The Jones KL 66 Mobile Crane that forms the subject of the attractive Competition announced on this page.

Among the Model-Builders

By "Spanner"

A Model from Canada

From far off British Columbia I have received photographs of various models built by a Canadian Meccano enthusiast, Mr. D. Threlfall, who lives in Vancouver. They include a beam-operated "teeter-totter" and a large beam pump. I am illustrating the beam pump on this page, as I think it is rather a striking model and one that is a little off the beaten track. Unfortunately I do not possess its constructional details, but I think the illustration shows its main features fairly clearly. Mr. Threlfall is a model-builder



A working model of a large beam pump built by Mr. D. Threlfall, Vancouver, B.C.

of many years' experience, and it is always pleasing to hear from keen Meccano users, especially when they live so far away from the homeland of the hobby.

A Meccano Cord-Making Machine

Many Meccano enthusiasts have of course other hobbies apart from their Meccano activities, and from time to time I receive details from model-builders who have found their Meccano useful in making special tools and equipment of use in their other pastimes. One instance of the practical value of Meccano in this connection was brought to my notice recently by Mr. C. Fedele, Locarno, Switzerland. Mr. Fedele is a Meccano enthusiast, but he is interested also in the construction of scale model ships. Among his more recent constructions is a fine miniature of the famous "Kon Tiki" raft that was so much in the news a short time ago.

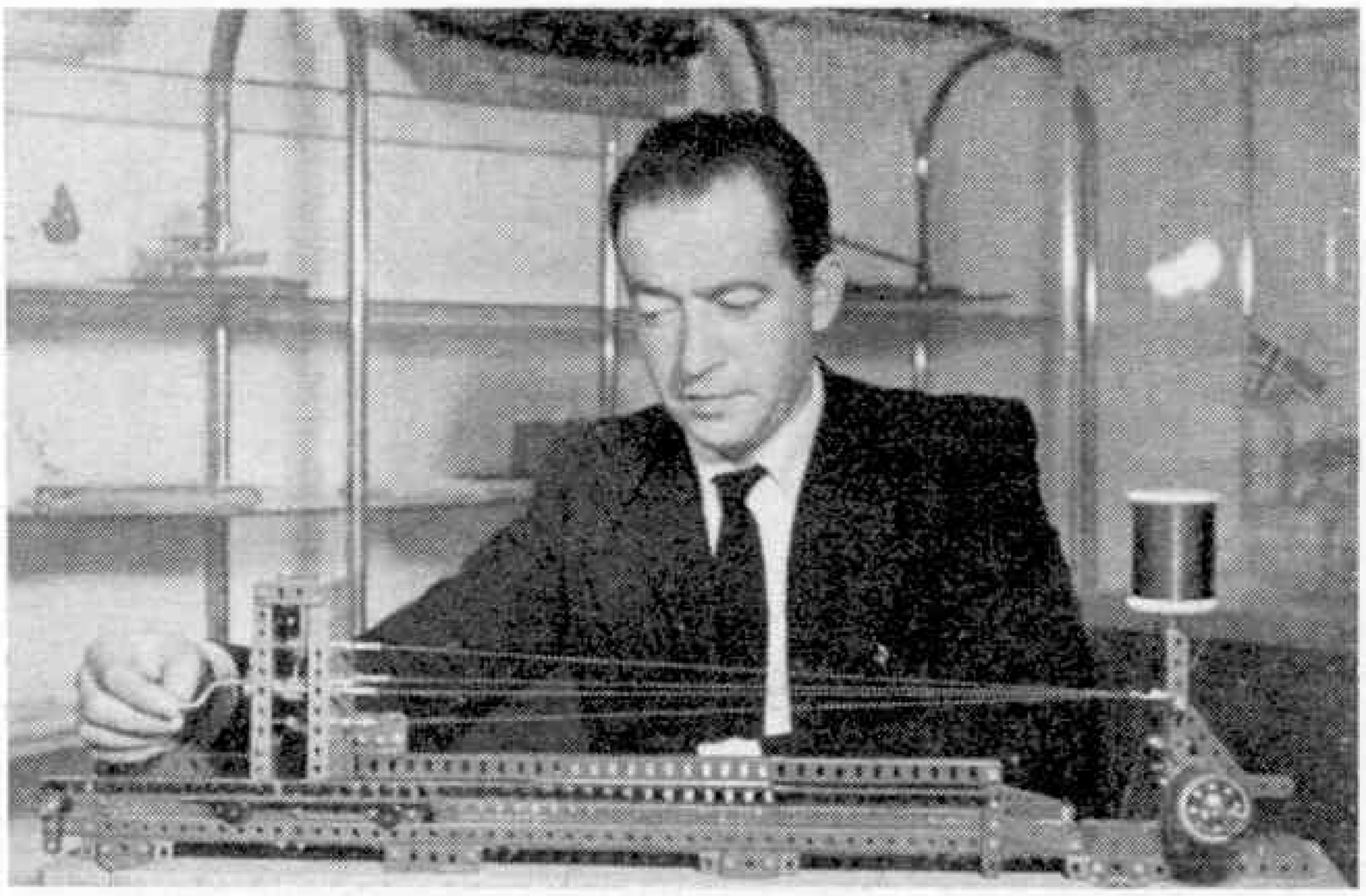
Mr. Fedele tells me that he has found it difficult to obtain cords of the correct size to represent rigging ropes in these scale models and he set to work to make his own cords on a machine built specially for this purpose with Meccano. A picture of this machine, with Mr. Fedele setting up the strands, is reproduced on the next page.

The machine is quite simple in design and is hand-operated. Revolving spindles that twist several strands to form a single strong cord are supported in a wheeled carriage mounted on rails fastened to the base. At the end of the base opposite to the carriage is a structure that carries the reels from which the strands are drawn. I have had an opportunity of examining several samples of the cords made on the machine, and I was very impressed by the even appearance of the finished products.

I shall be glad to hear from any other enthusiast who has been able to use his Meccano to help him in one of his other pursuits or pastimes.

A Variable Speed Pulley

Very often in models operated through pulleys and driving belts, some means of varying the speed of the model is required. The system usually adopted in Meccano is to arrange two or more Pulleys or a Cone Pulley on the driving and driven shafts, so that by transferring the belt from one set of Pulleys to another the speed of



Mr. C. Fedele, Locarno, Switzerland at work with his cord-making machine, which is referred to on the previous page.

the driven shaft is altered according to the diameters of the Pulleys round which the belt is passed. With this arrangement the number of different speed ratios available is determined by the number of sets of Pulleys fitted to the shafts. In actual practice this system is not always convenient, and very often a variable speed pulley is employed that enables the speed of the driven shaft to be altered to any ratio between upper and lower limits governed by the diameter of the pulley. A Meccano variable speed pulley is shown in Fig. 1, and with this arrangement the speed of the driven shaft can be altered at will simply by turning a handwheel.

The pulley is in two sections, each of which consists of a Boiler End mounted on the driving shaft of the model. Two ½″ Bolts are passed through opposite holes in the rim of each Boiler End, and each Bolt is screwed into a Rod Socket 1 that is fixed to a Bush Wheel. The Boiler End 2 is made to turn with the shaft by fixing its Bush Wheel in place, but the Boiler End 3 and its Bush Wheel 4 are free to slide on the shaft. A 10″ heavy Driving Band is placed between the Boiler Ends and is passed round a 3″ Pulley on the driven shaft 5.

A 2″ Strip 6 is passed over the driving shaft and is spaced from the Bush Wheel 4 by three Washers. The lower end of the Strip is attached to the side of the mechanism housing by a ½″ Bolt, with a Collar on the Bolt to space the Strip from the housing.

The control wheel is a Wheel Disc, which is fixed tightly by two nuts on a 2″ Screwed Rod. The Screwed Rod is supported in a Threaded Crank fixed to the housing and is located in a hole in the Strip 6 by two sets of lock-nuts, one set at each side of the Strip.

When the control wheel is turned to move the Screwed Rod inward, the Strip 6 presses the two Boiler Ends close together, and the Driving Band is made to ride towards the rim of the built-up pulley formed by the Boiler Ends. The distance between the two Boiler Ends depends on the pressure exerted by the Strip 6, and by varying the distance between the Boiler Ends the effective diameter of the built-up pulley can be altered at will.

A Single Plate Friction Clutch

Many different types of friction clutches have been described in the *M.M.*, and

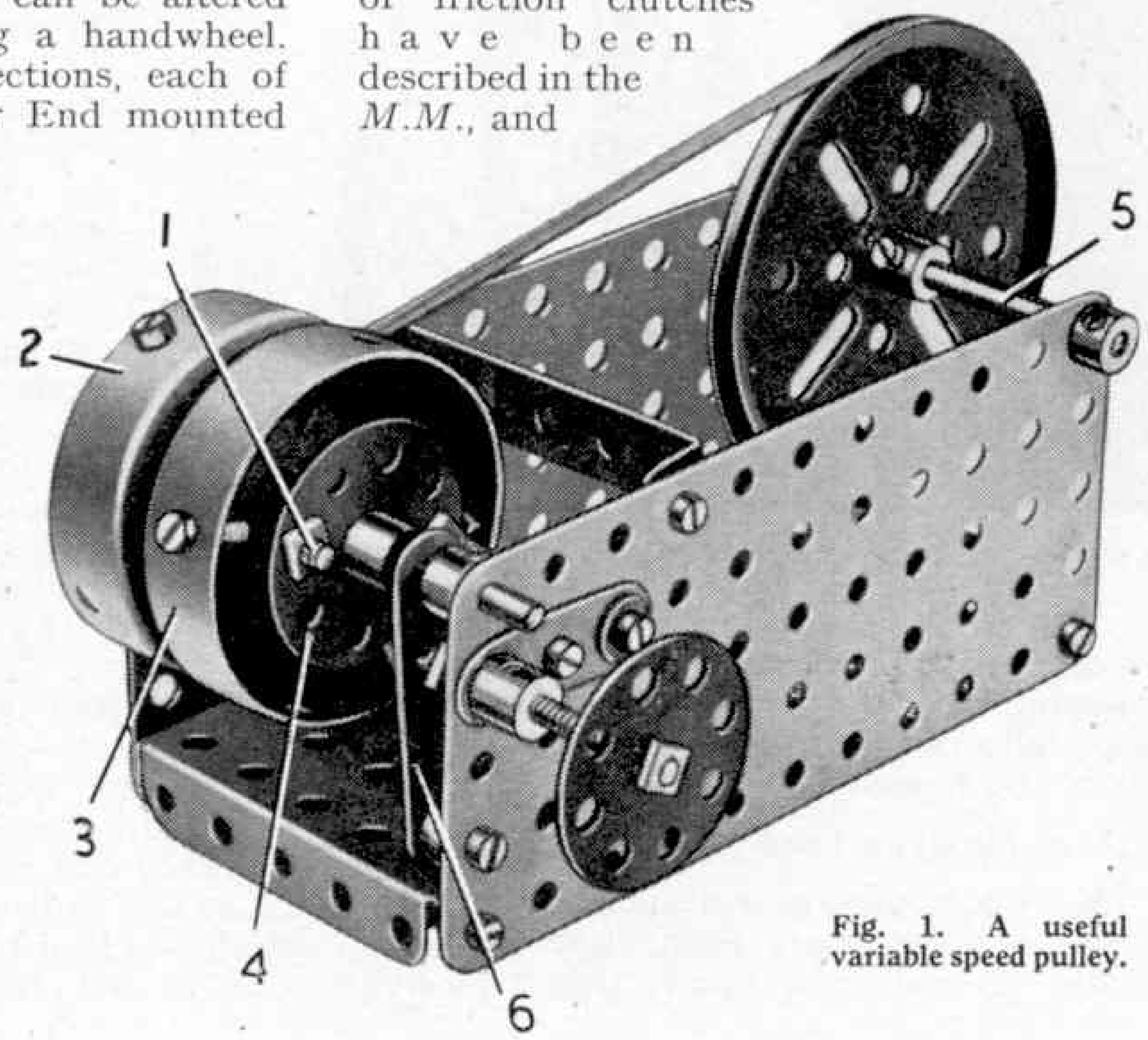
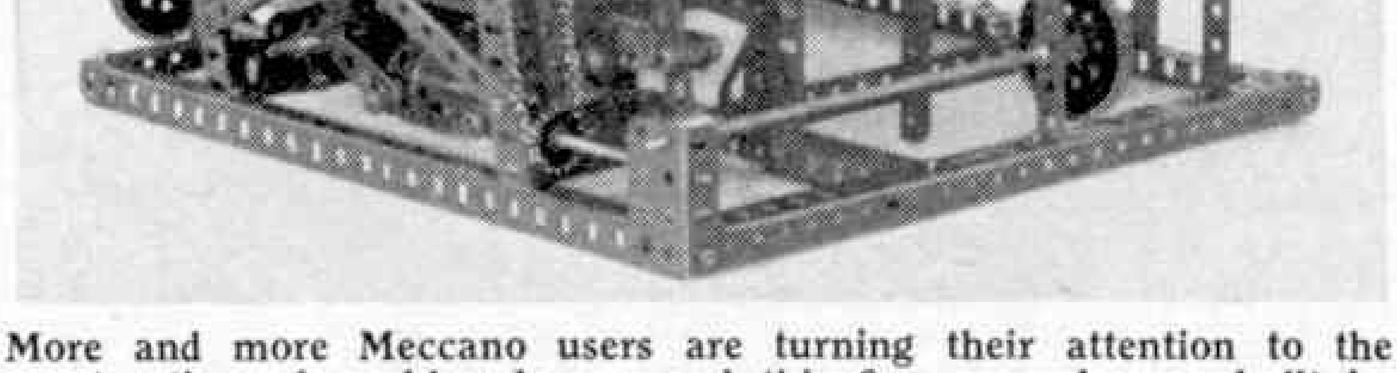


Fig. 1. A useful variable speed pulley.

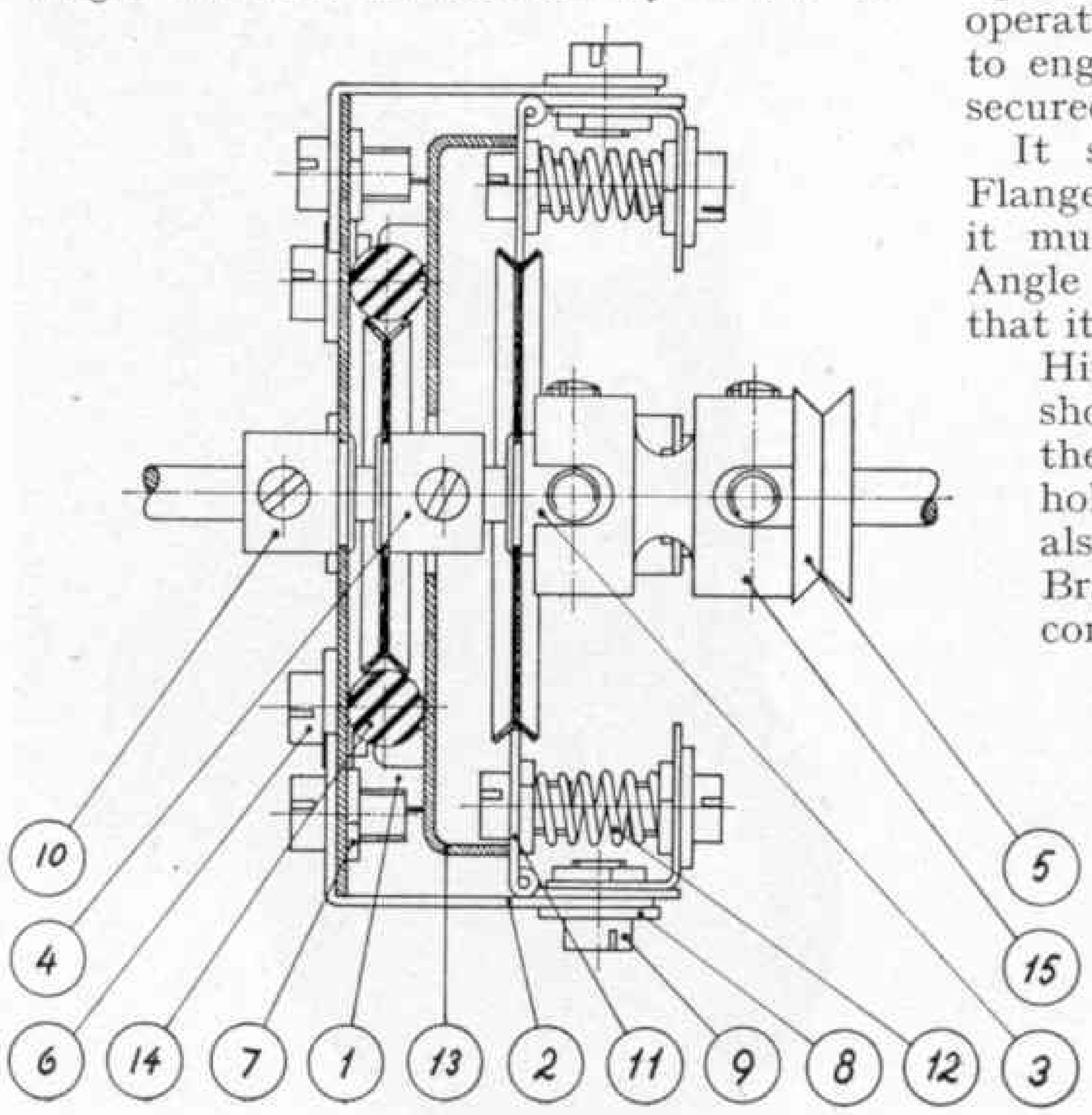
this month I am including one that seems to me to be one of the best that has yet appeared, since it follows very closely the principles on which actual clutches are designed. This particular example has been developed by Mr. N. Gottlob, Hjortekaer, Denmark, who also prepared the excellent drawing of it that is reproduced in Fig. 2. This clutch is very powerful, but it requires skilful assembly and must be accurately adjusted if it is to work efficiently.

On the input shaft a Face Plate 10 is fitted. The shaft should protrude only half way into the boss of the Face Plate. A 1" Pulley 4 fitted with a Rubber Ring 14 is fixed to a suitable output shaft, whose extreme left end is journalled in the boss of the Face Plate. Four 1" × ½" Angle Brackets 2 are secured to the outer circular holes in the Face Plate. A Wheel Flange is passed over the boss of the 1" Pulley, and is centred by four ½" Angle Brackets 1 secured through their short lugs to the four oblong holes in the Face Plate by Bolts 6. Washers are placed under the Bolt heads.

To the oblong holes in the Angle Brackets 2 a Hinge 11 and a ½" Angle Bracket are secured by means of Set Screws (part No. 69). A Washer 8 is placed under the Screw heads. Between Bolts fitted to the other lugs of the Hinges and the Angle Brackets a Compression Spring 12 is placed. A 1½" Pulley 3 fitted in a Socket Coupling 15 is free to slide on the output shaft and its groove engages the tips of the Hinge lugs. A suitable lever for operating the clutch should be arranged to engage in the groove of a ½" Pulley 5 secured in the Socket Coupling.



More and more Meccano users are turning their attention to the construction of working looms, and this fine example was built by John Linstead, Ilfracombe. It was displayed at a local Exhibition and attracted great attention.



It should be noted that the Wheel Flange must be absolutely free to move, yet it must be carefully guided by the ½" Angle Brackets fixed to the Face Plate so that it does not foul the Bolt heads on the Hinges. Similarly, careful adjustment should be carried out with respect to the position of the Hinges in the oblong holes in the Angle Brackets 2. It may also be necessary to bend the Angle Brackets 2 slightly in order to get the correct engagement of the Hinges in the groove of Pulley 3.

It will be seen that the four Springs act very advantageously on the Wheel Flange, exerting a powerful grip on the Rubber Ring between the ample friction surfaces of the Wheel Flange and the Face Plate.

Fig. 2. Drawings of the powerful single-plate friction clutch designed by Mr. N. Gottlob, Hjortekaer, Denmark.

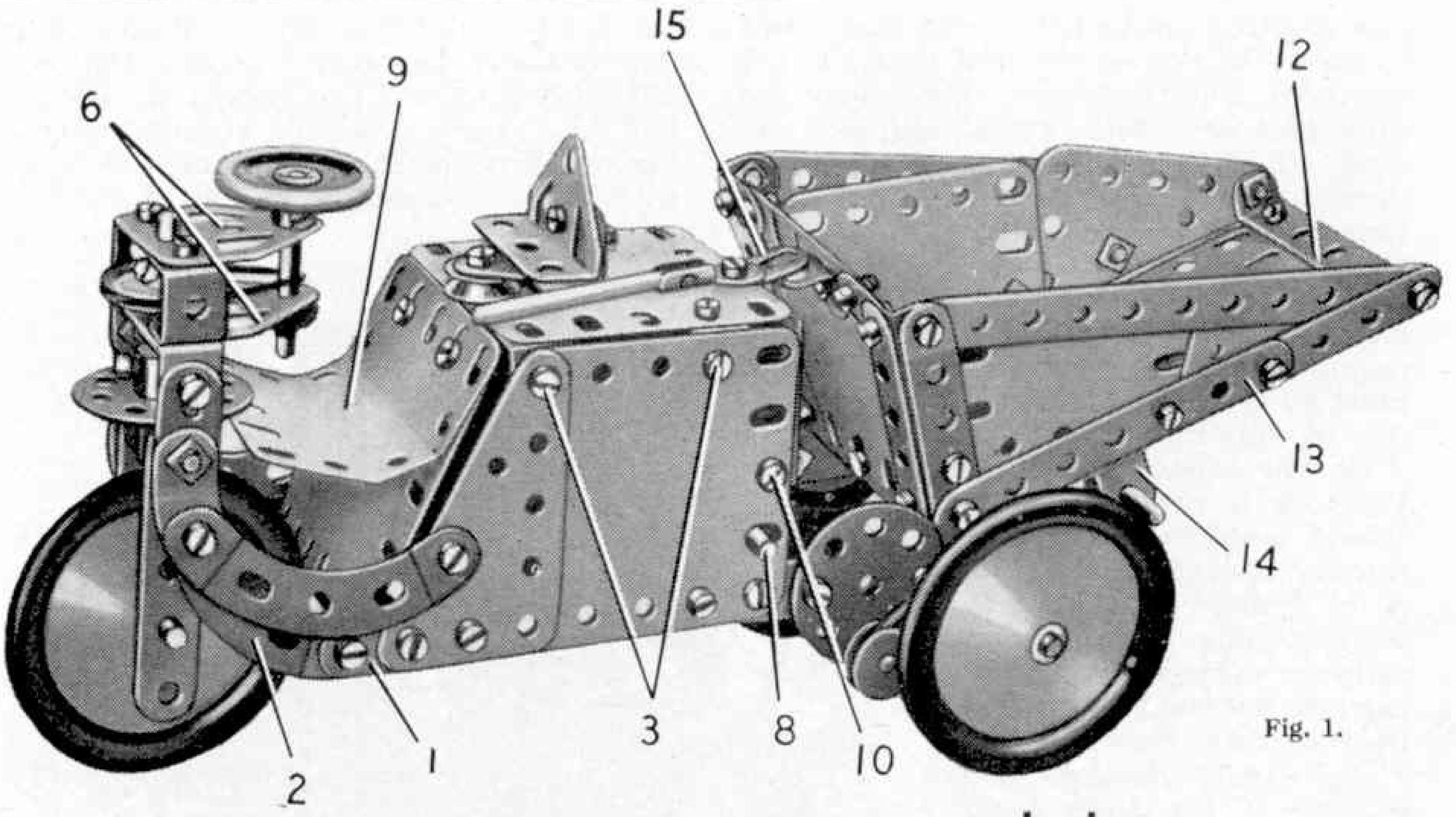


Fig. 1.

New Meccano Models

For Outfits Nos. 00 and 4

A THREE-WHEELED Dumper Truck that can be built with Outfit No. 4 is the first of our two new models to be described this month. This model is driven by a *Magic* Clockwork Motor concealed inside the body, and the vehicle is fitted with a neat steering mechanism. The Dumper Truck makes good use of the new Triangular Flexible Plates and Right Angle Rod and Strip Connectors now included in a No. 4 Outfit. The Triangular Flexible Plates help to reproduce the body of the real machine realistically, and novel use is made of the Right Angle Rod and Strip Connectors in pivoting the hopper to the chassis.

The Truck is shown in Figs. 1, 2 and 3, and it is best to begin construction by bolting a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Triangular Flexible Plate to a made-up strip 1 on each side. These strips form the chassis members, and each consists of two $5\frac{1}{2}''$ Strips overlapped eight holes. At the front a $2\frac{1}{2}''$ Stepped Curved Strip 2 is fixed to each of the strips 1, and is connected to the Triangular Flexible Plate by another $2\frac{1}{2}''$ Stepped Curved Strip.

The sides are connected together by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips held by bolts 3, and by a further $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 4. At the rear end of the chassis another $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 5 is fixed between the strips 1. Each of the Curved Strips 2 is extended upward by a Fishplate, and the latter parts are connected by a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip that supports two Flat Trunnions 6 joined together by Double Brackets.

A *Magic* Clockwork Motor is bolted by two of its lugs to one side of the body, and the Motor pulley is connected by a crossed Driving Band to a 1" Pulley on a $3\frac{1}{2}''$ Rod 7. This Rod is supported in Wheel Discs bolted to the strips 1, and is held in place by a $\frac{1}{2}''$ Pulley and a Spring Clip. The $\frac{1}{2}''$ Pulley is supplied with the *Magic* Motor, and it is connected by a Driving Band to a 1" Pulley on the rear axle. This axle consists of a $3\frac{1}{2}''$ and a 2" Rod joined by a Rod Connector. The 1" Pulley is spaced from one of the strips 1 by five Washers and a Spring Clip. A $\frac{1}{2}''$ Reversed Angle Bracket is lock-nutted to the Motor

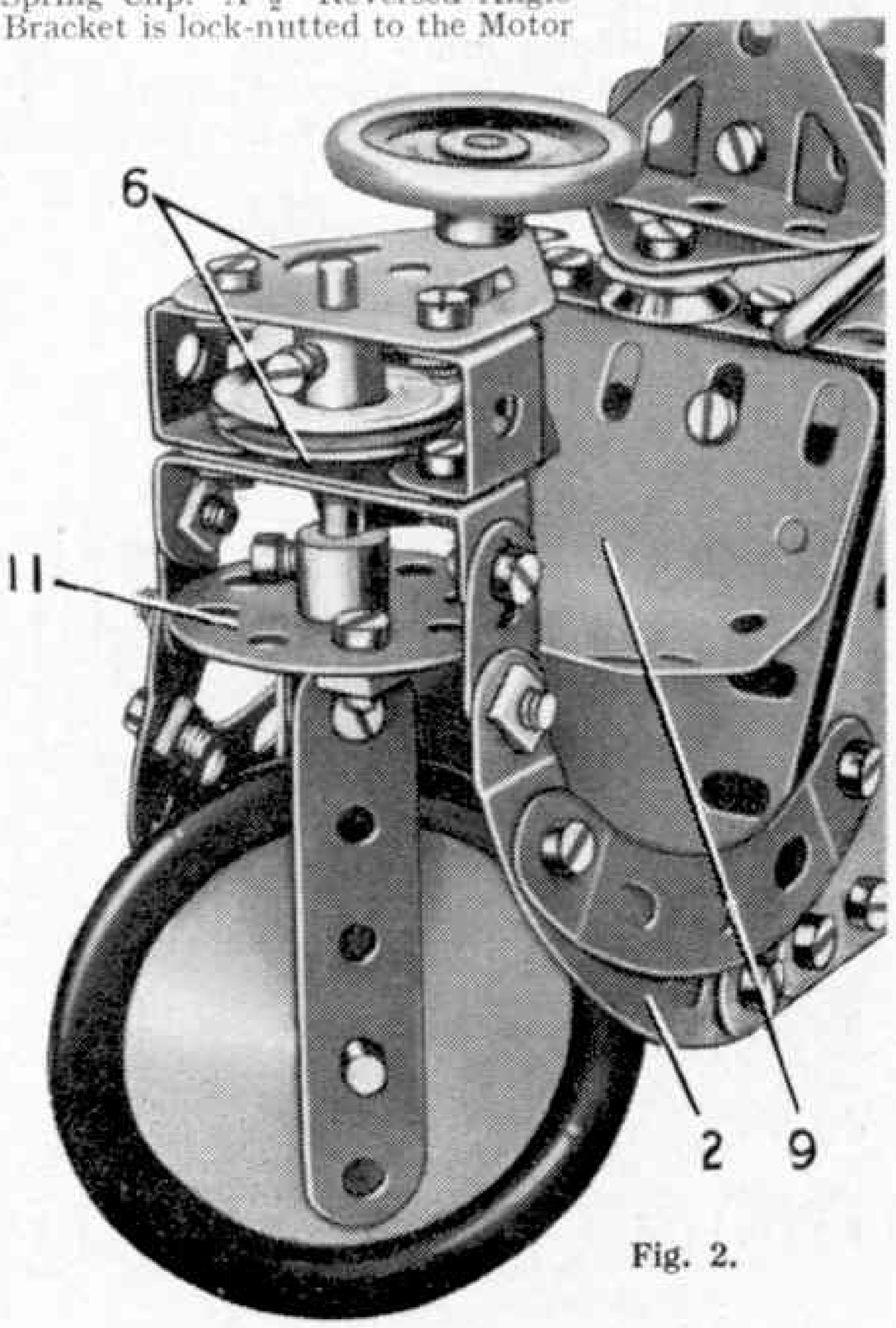


Fig. 2.

Fig. 1. A fine model Dumper Truck with which the builder can have real fun. It can be built from the parts in Outfit No. 4.

Fig. 2. A "head-on" view of the steering mechanism of the Dumper Truck.

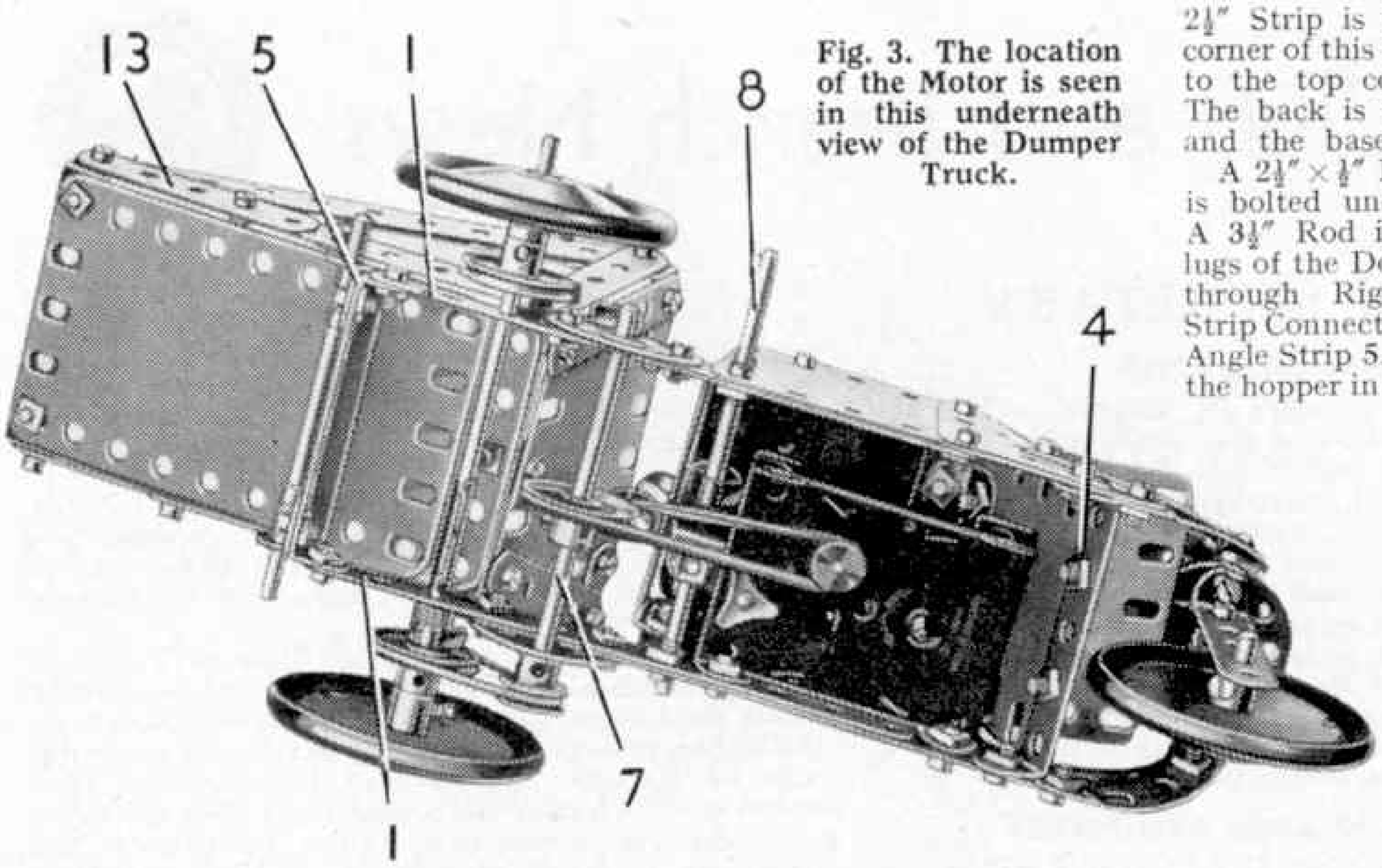


Fig. 3. The location of the Motor is seen in this underneath view of the Dumper Truck.

brake lever. A 4" Rod 8 is passed through the sides of the body and the centre portion of the Reversed Angle Bracket. Two Spring Clips are placed on the Rod on either side of the Bracket, so that the brake lever can be operated by sliding the Rod.

A 2½" × 2½" Flexible Plate is bolted to the Double Angle Strips held by the bolts 3, and a similar Flexible Plate is attached to the front Double Angle Strip by Obtuse Angle Brackets. The lower edge of the second Flexible Plate is fixed to the Double Angle Strip 4. The footboard 9 is a U-section Curved Plate opened out slightly. A 2½" × 1½" Flanged Plate is fixed at the back of the body by bolts 10. The seat consists of two Trunnions bolted together, and it is spaced from the body by a ½" loose Pulley on a ⅜" Bolt.

A close-up of the front wheel and the steering mechanism is seen in Fig. 2. The wheel is fixed on a 1" Rod supported in two 2½" Strips, each of which is attached by an Angle Bracket to a Bush Wheel 11. This Bush Wheel is fixed on a 1½" Rod supported in the Flat Trunnions 6. The Bush Wheel is spaced from the lower Flat Trunnion by a Washer and a Spring Clip, and a 1" Pulley is fixed on the Rod between the Flat Trunnions. A 2½" Driving Band is passed round this Pulley and round a 1½" Rod, which also is supported in the Flat Trunnions and is held in place by a Spring Clip. The 1½" Rod just mentioned carries at its upper end a 1" Pulley fitted with a Rubber Ring. This Pulley serves as the steering wheel.

The base of the dumper hopper is made by overlapping two 4½" × 2½" Flexible Plates by eight holes. At one end a 2½" × ½" Double Angle Strip is bolted to the base, and at the other end a 2½" Strip 12 is fixed in place. The sides consist of a 2½" Strip, a 5½" Strip and a made-up strip 13, arranged to form a triangle. The strip 13 is made from a 3½" and a 2½" Strip, overlapped two holes, and the side is plated by a 2½" × 1½" Flexible Plate and a 2½" × 1½" Triangular Flexible Plate. The sides are attached to the lugs of the Double Angle Strip, and are connected to the Strip 12 by Angle Brackets. The back of the hopper is a straightened 1 11/16" radius Curved Plate. A 2½" Strip is bolted to each lower corner of this Plate and is connected to the top corner by a Fishplate. The back is attached to the sides and the base by Angle Brackets.

A 2½" × ½" Double Angle Strip 14 is bolted underneath the hopper. A 3½" Rod is passed through the lugs of the Double Angle Strip, and through Right Angle Rod and Strip Connectors fixed to the Double Angle Strip 5. The catch that holds the hopper in the travelling position is a 2" Rod fitted in a Rod and Strip Connector. The Rod and Strip Connector and a Fishplate 15 are fixed tightly together by a nut on a ⅜" Bolt, which is then passed through the top of the body and is fitted with lock-nuts. The Fishplate 15 engages an Angle Bracket bolted to the hopper and the end of the 2" Rod is slipped under the driver's seat.

Parts required to build the Three-Wheel Dumper Truck: 6 of No. 2; 2 of No. 3; 9 of No. 5; 5 of No. 10; 2 of No. 11; 8 of No. 12; 2 of No. 12c; 1 of No. 15b; 3 of No. 16; 2 of No. 17; 2 of No. 18a; 1 of No. 18b; 5 of No. 22; 1 of No. 23; 1 of No. 24; 2 of No. 24a; 8 of No. 35; 79 of No. 37a; 75 of No. 37b; 9 of No. 38; 1 of No. 48; 6 of No. 48a; 1 of No. 51; 4 of No. 90a; 2 of No. 111c; 1 of No. 125; 2 of No. 126; 2 of No. 126a; 1 of No. 155; 1 of No. 186; 3 of No. 187; 2 of No. 188; 4 of No. 190; 2 of No. 191; 1 of No. 199; 1 of No. 200; 1 of No. 212; 2 of No. 212a; 1 of No. 213; 4 of No. 221; 1 *Magic* Clockwork Motor.

Our second new model is the simple Scooter illustrated in Fig. 4. This is designed for building from the parts in the new Outfit No. 00. Building of it should be begun by bolting together at one end two 5½" Strips that form the frame of the Scooter. One of the Strips is curved slightly as shown, and the bolts that fix the Strips together hold in place also a Trunnion 1. The rear wheel is fixed by its set screw on a ⅜" Bolt passed through the Trunnion 1 into the boss of the wheel.

The front wheel is supported by a ⅜" Bolt passed through a Trunnion 2 and fixed in the boss of the wheel by its set screw. An Angle Bracket is bolted to the flange of the Trunnion and also to a made-up strip 3, which is formed by overlapping two 2½" Strips three

(*Continued on page 614*)

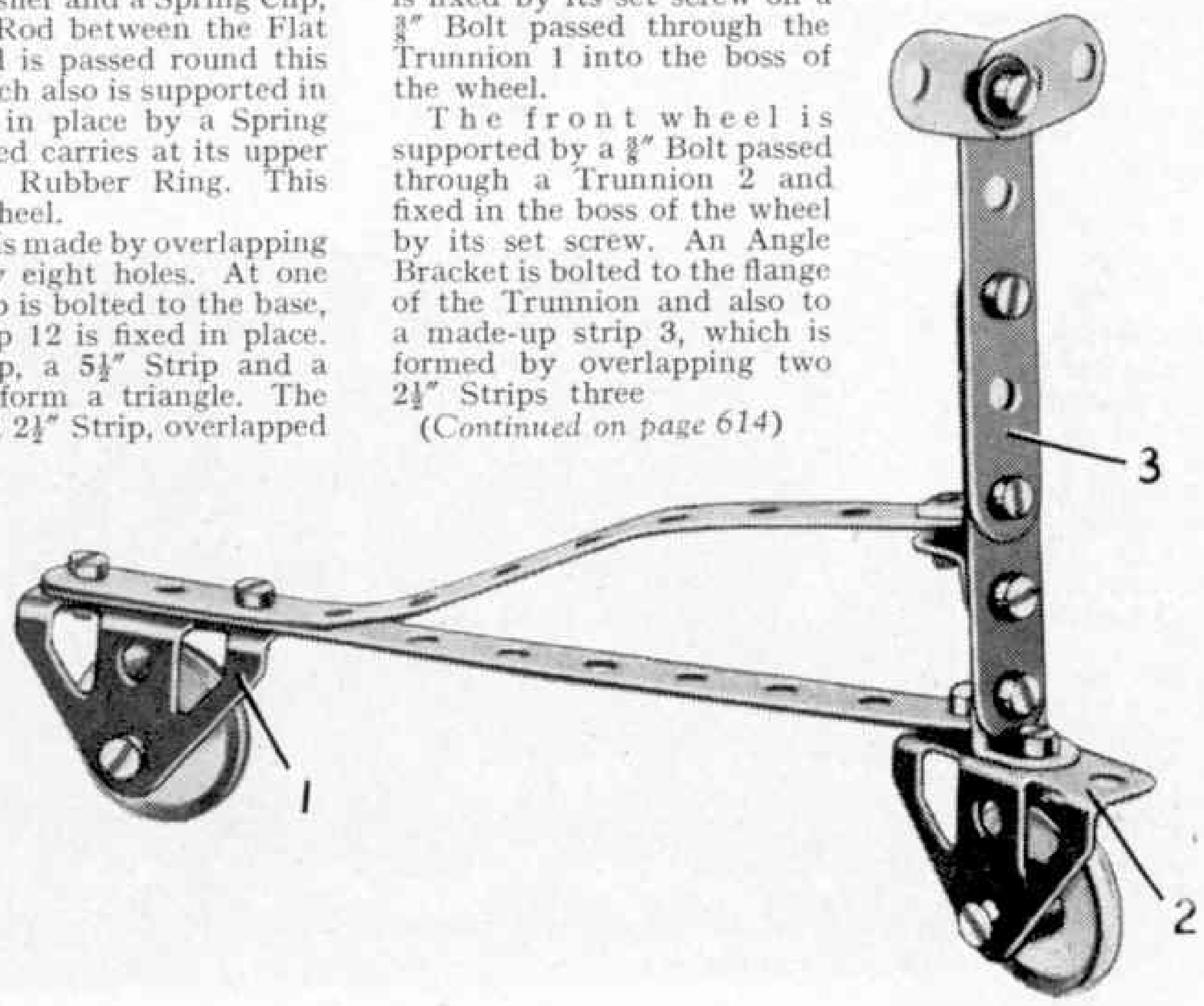


Fig. 4. A simple Scooter that forms an attractive model for young beginners in Meccano. It can be built from the new Outfit No. 00.

Club and Branch News

WITH THE SECRETARY

CHRISTMAS GREETINGS

Again I have the pleasure of wishing a Merry Christmas to all members of the Guild and H.R.C. and to Meccano Clubs and H.R.C. Branches. It has become traditional for the first of the Winter Sessions to be "wound up" with a Christmas party, with plenty to eat, crackers to pull and lots of fun and games. Many Meccano Clubs and Branches extend their Christmas Party invitation to the parents of members, having discovered that pleasure is all the greater for being shared, and that members are always happier when they invite others to join in their fun.

I shall be thinking of members enjoying themselves in this way during the festive season.

FORTHCOMING BRANCH EXHIBITION

The Mile End (Portsmouth) H.R.C. Branch will hold a Clockwork Railway Exhibition on Wednesday, 15th December, in the Buckland Congregational Church Hall, Kingston Road (corner of Queens Road), Buckland, Portsmouth. The Exhibition will be open from 4.30 p.m. until 9.30 p.m. Admission: Adults, 1/–; Children, 6d. An extensive and very attractive clockwork railway layout will be operated.

CLUB NOTES

EXETER M.C.—Membership continues to increase and there is much enthusiasm at Model-building meetings. Models recently completed have included a goods yard crane, Meccano advertisement sign, tug boat, and a working weighing machine. The Club has acquired a Hornby Railway, and members have been bringing their own equipment to add to it on Train Nights. Club roll: 25. *Secretary:* C. Willis, 23 Hanover Road, Heavitree, Exeter.

BELGRAVE UNION (LEICESTER) M.C.—The two-day Exhibition in the Belgrave Union Church rooms was a great success, the fine display of working Meccano models and the extensive model railway layout being outstanding attractions. The Exhibition was highly praised by the many visitors, and by the local newspaper which published both a report and photograph of the event. Club roll: 19. *Secretary:* Mr. C. S. Smith, 18 Doncaster Road, Melton Turn, Leicester.

STRENSALL (YORK) M.C.—The highlight of the Club's annual outing this year was a visit to Messrs. Cochranes Steel Works, Middlesbrough, where members were greatly interested in the many processes carried out. During the same day the Middlesbrough Docks Superintendent took the party over the Docks installation. The seniors have been grouped into two Sections named Mechanics and Fitters respectively, and points scored at monthly points contests and fortnightly competitions go towards a House Shield. Club roll: 13. *Secretary:* J. Nurse, 73 Northfields, Strensall, nr. York.

CONSETT Y.M.C.A. M.C.—The Consett Y.M.C.A., with which this Club is associated, had a tent of their own at the Consett District Exhibition and Show. An outstanding feature of the display in this tent was a fine range of Meccano models that included one of a 600 b.h.p. mine hauler and a model of a mine conveyor. Both these models were in operation, and proved great attractions. Club roll: 28. *Secretary:* J. Norman Barron, 4 Garden Place, Leadgate, Consett, Co. Durham.

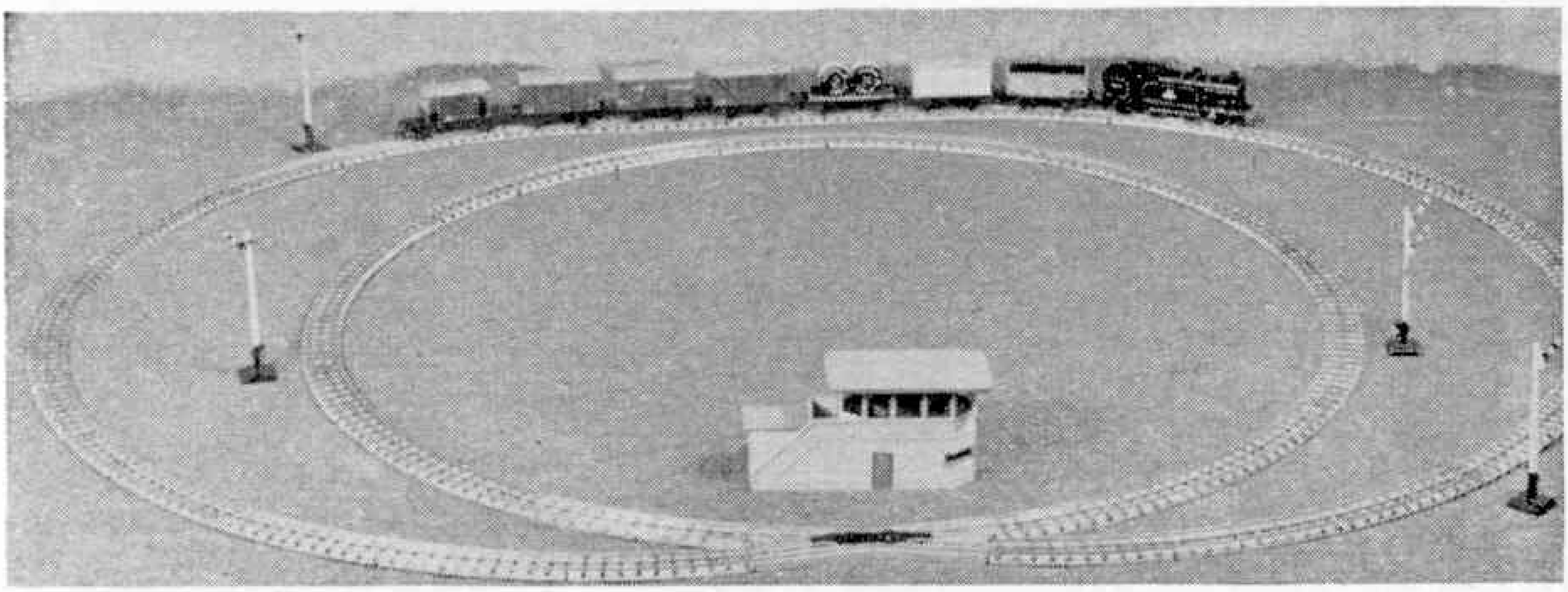
BRANCH NEWS

KENTISH TOWN—New members will be welcomed. The Branch railway has been redesigned and the locomotives overhauled. Model aircraft construction is again becoming popular. Everyone is on the lookout for a new Club room, to enable the Branch to extend. *Secretary:* J. A. Kirby, 9 Busby Place, Kentish Town, London N.W.5.

HALE END (LONDON)—At one meeting members were tested on Hornby-Dublo operating, tests being made on accurate stopping, shunting, and smooth coupling of rolling stock. Members who passed the test were then asked to rail certain vehicles in a given time. There is a demand for locomotive "spotting" trips, and a member has been appointed to organise small outings of this kind. *Secretary:* A. L. Coe, 463 Hale End Road, Highams Park, London E.4.

AVIARY MODEL RAILWAY CLUB (LEEDS)—An outing to Knaresborough on the new Diesel car unit, in which the parents of some of the members also took part, was greatly enjoyed. The construction of cutout models for the Branch Hornby-Dublo layout is making good progress. Plans are in hand to raise funds for the purchase of additional railway equipment. *Secretary:* L. Blakey, 21 Arley Street, Armley, Leeds 12.

Officials and members of the Bury Grammar School M.C. This very successful Club was affiliated with the Meccano Guild in January 1950, and carries out an attractive programme of Meccano Model-building and Hornby Train operations.



HORNBY RAILWAY COMPANY

By the Secretary

Hornby-Dublo Trains Driven by Battery

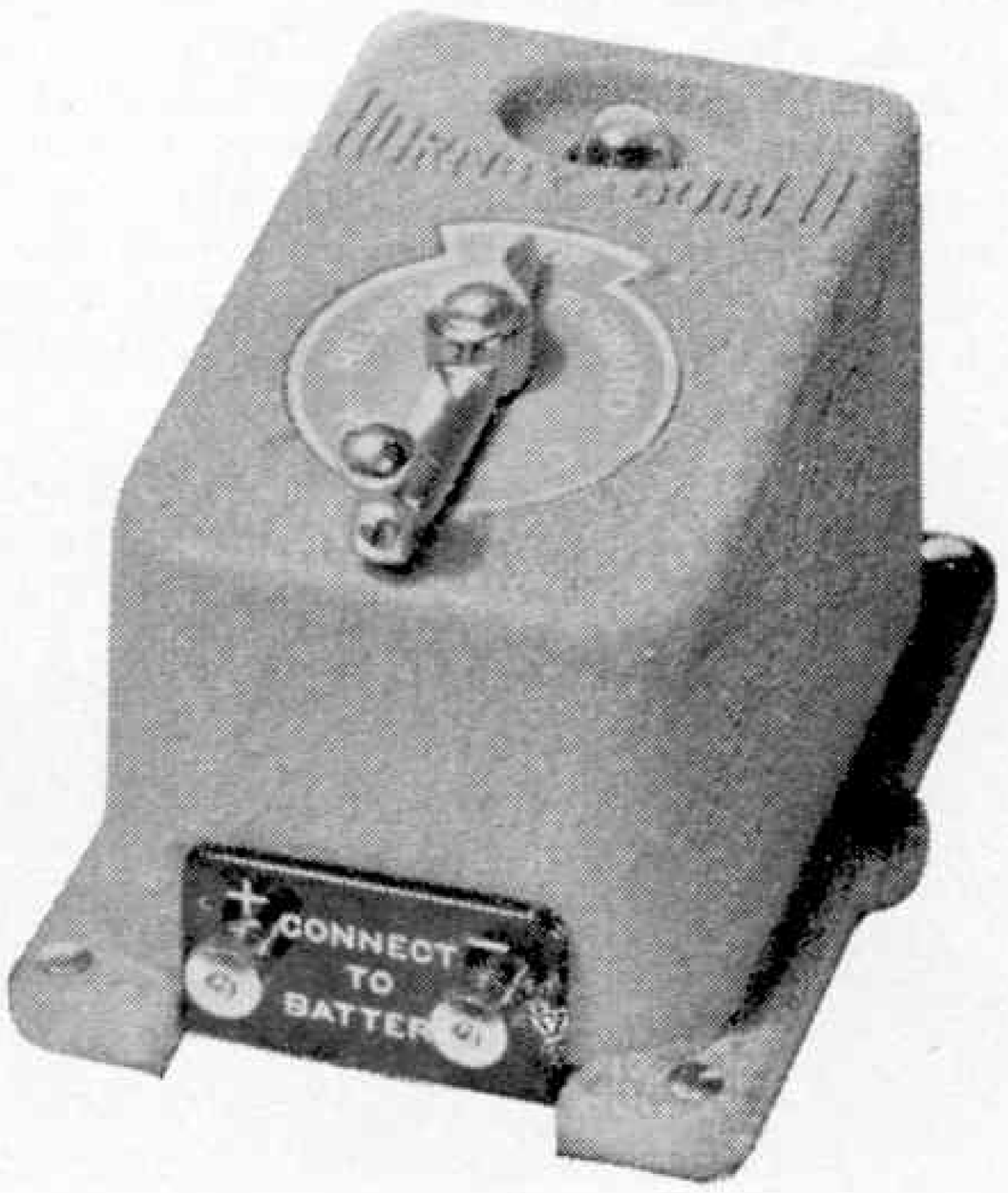
THIS month I have good news for those would-be Hornby-Dublo owners who have no A.C. mains supply. A popular question regarding Hornby-Dublo Trains has always been *"Can I run a Hornby-Dublo Train from a dry battery?"* The answer now is *"Yes,"* for a battery controller specially designed for the purpose has been introduced in the Hornby-Dublo system. This Battery Control Unit, to give it the correct title, is simple, neat and efficient, and it will be given a great welcome by all who are unable to make use of mains current, or who wish for any reason to employ the handy source of current that dry batteries provide.

It should be made quite clear straight away that the new Controller is not a cheap type with fixed resistance steps. On the contrary, the degree of control afforded is very smooth, so that those who run their Hornby-Dublo Trains with its aid can enjoy really good engine driving.

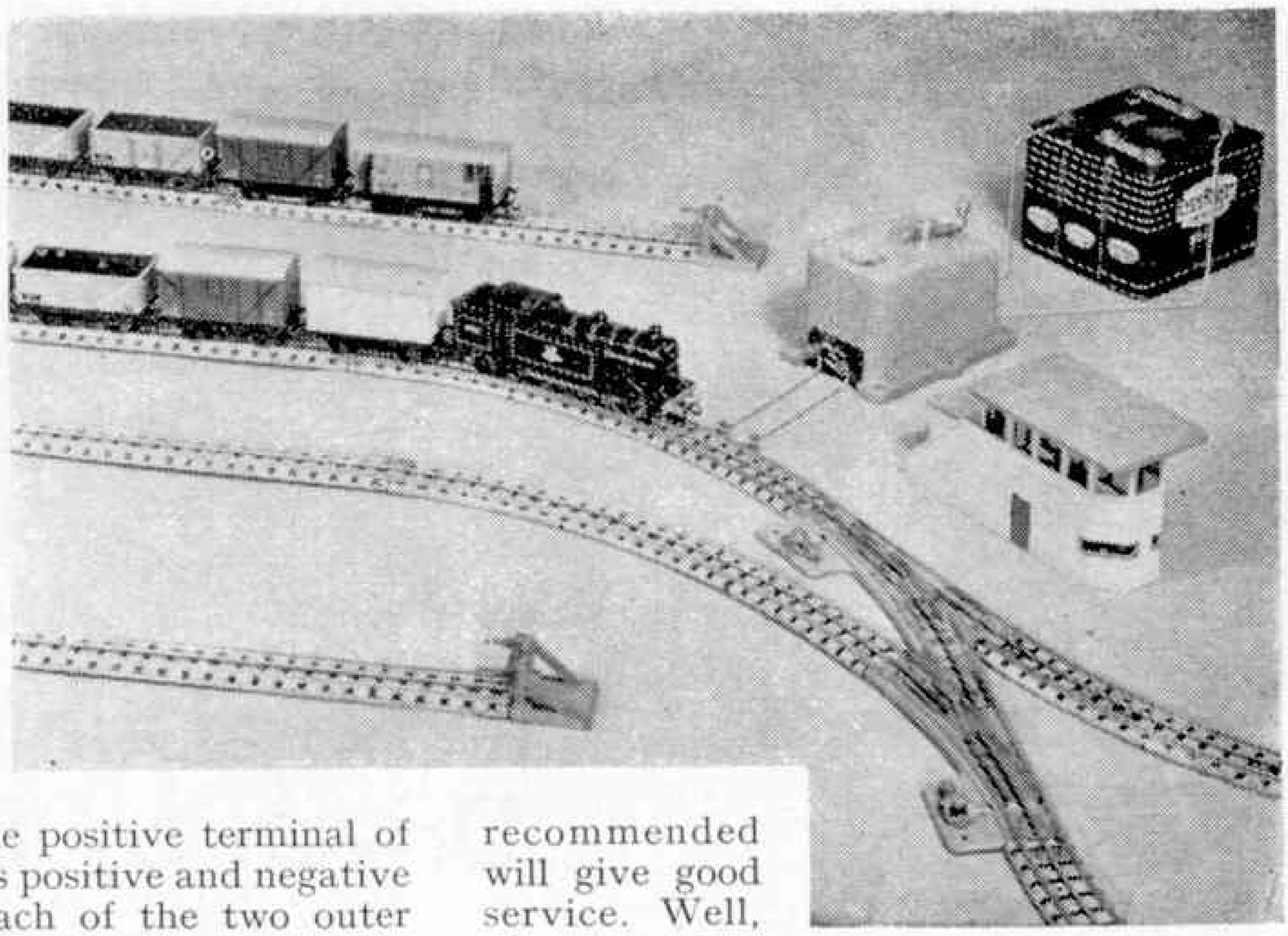
Simplicity in handling is the keynote, for the single handle mounted on top of the casing is used, not only to look after speed regulation, but also to reverse the direction of movement of the engine when required. A good feature of the Control Unit is that it tells the operator at once when there is a short circuit on the track, whether this is due to a derailment or to some other cause. This is done by means of a pilot or indicating lamp, which glows immediately if there is any happening of this kind. The lamp goes out as soon as the trouble has been tracked down and put right, and normal working can be resumed without the operator doing anything more about it.

As the capacity of a dry battery is limited, it is only natural that some of you should wonder what particular type of battery it is best to use. A 12-volt supply is required, so we recommend that Hornby-Dublo owners should use three 4.5-volt dry batteries of Ever-Ready type 126 or Drydex type H30.

Whichever type is used the method of connection is the same. The three batteries



To the right is the new Hornby-Dublo Battery Control Unit described in these pages. Above is a "figure 8" layout incorporating the Diamond Crossing, now included in the range.



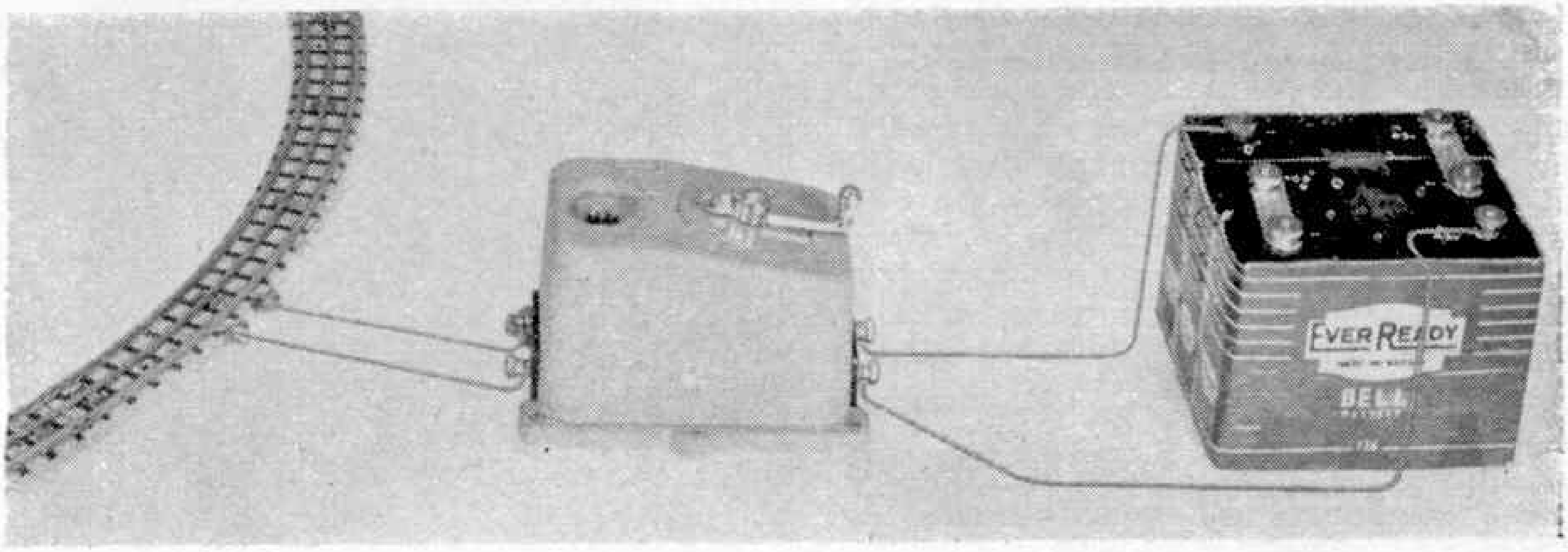
The pictures on this page show how a dry battery supply is wired up to the track through the Hornby-Dublo Battery Control Unit. The batteries recommended have a total effective life of about nine hours.

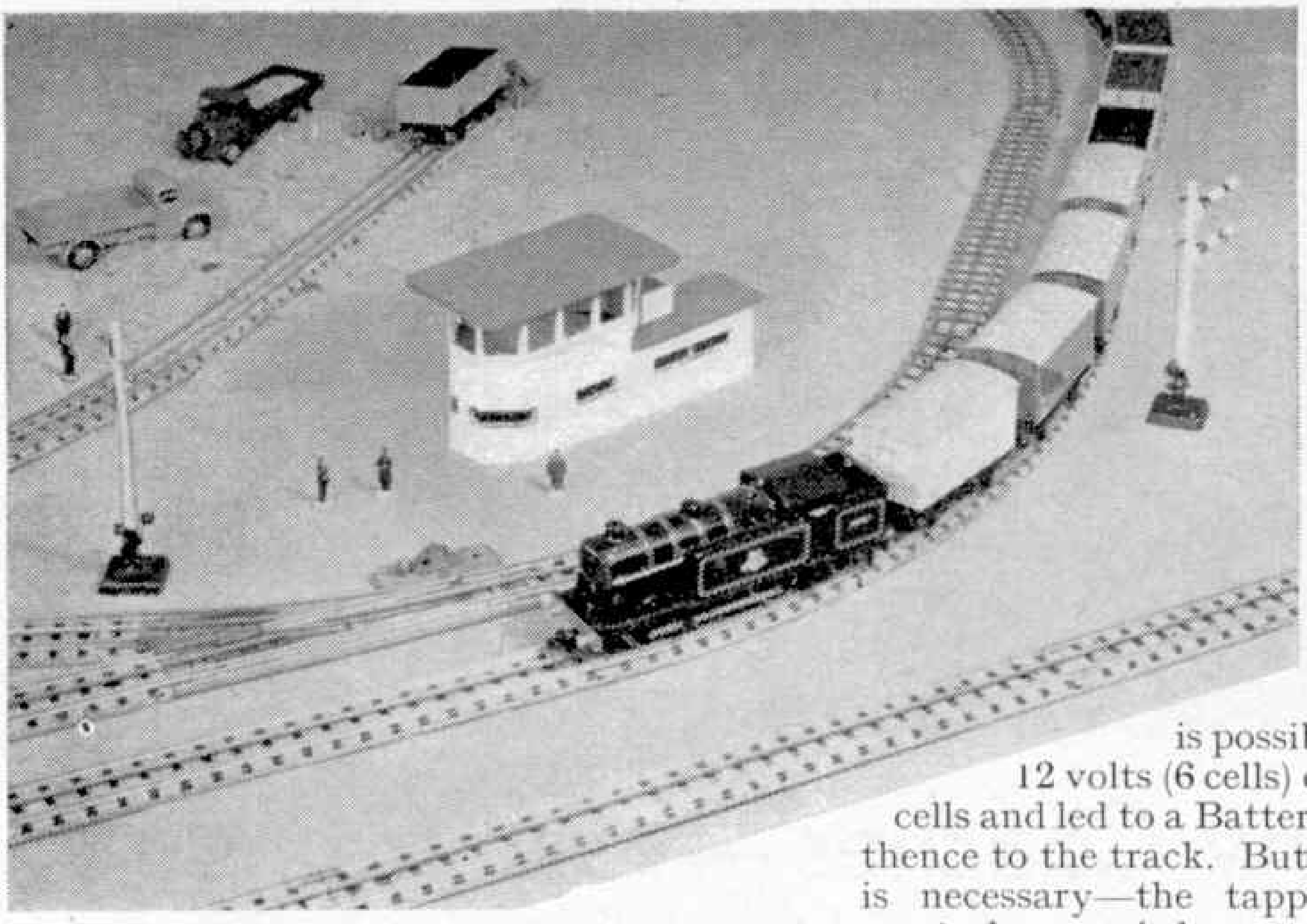
are linked together by means of connecting strips that are provided with each Battery Controller, to give the full voltage required. For this purpose they must be connected in series, that is the negative terminal of the first battery must be joined to the positive terminal of the second and the negative terminal of this second battery to the positive terminal of the third. This leaves positive and negative terminals, one on each of the two outer batteries, for connection to the input side of the Controller. From the Controller connections are made to the Terminal Rail on the track in the usual manner.

If in the course of preliminary testing it is found that the movements of the engine do not correspond with the movements of the control handle to *Forward* or *Reverse*, the connecting wires between the Controller and the track should be changed over. This can be done at the battery, or at the Terminal Rail end of the connections.

What about performance? There is no doubt at all about the running of a battery driven Hornby-Dublo locomotive. It will speed around its track splendidly, but batteries do not go on giving current for ever, as the mains normally do, and you will want to know how long the batteries recommended will give good service. Well, that will depend on the manner in which you use them. With ordinary care you can expect an effective life of nine hours. I imagine that very few of you will want to run your trains continuously for any such period as this, so that with intermittent running quite a satisfactory performance will be obtained.

If after a period corresponding to the nine hours already noted there is any falling away in the standard of running, and this is not due to track trouble or some similar cause, then the batteries are reaching the end of their useful life, and fresh ones will have to be obtained. Don't throw the old ones away too soon, however. Even when they are past their best for serious train running, they will often be found





An interesting corner of a simple Hornby-Dublo layout with a goods train passing on a main line.

useful for rail and circuit testing and so on.

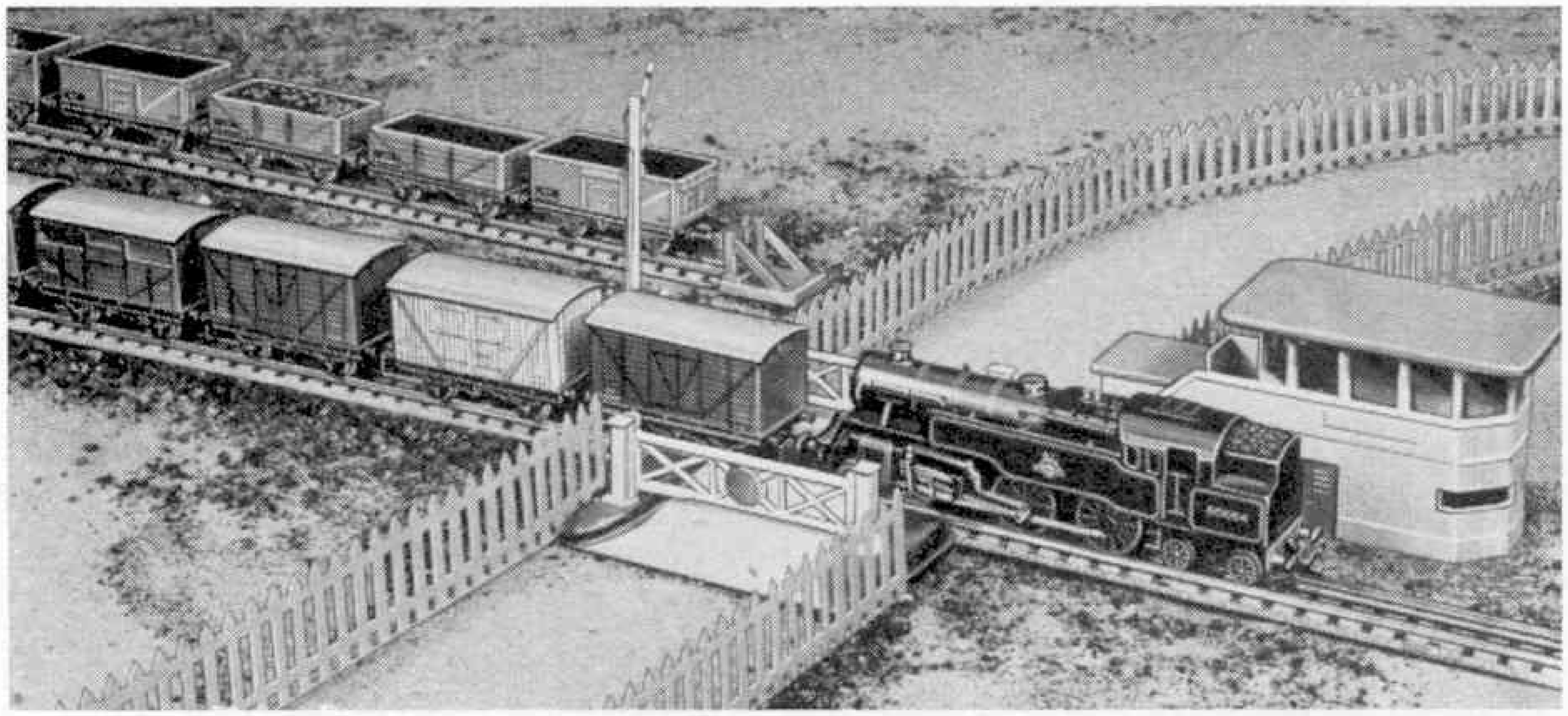
An alternative to the use of dry batteries is to use an accumulator, which many prefer because of the longer life that is obtained from it. Certainly an accumulator is bulky and it needs regular attention in the way of charging and general maintenance, but if a 12-volt 20-amp hour accumulator is properly cared for it gives very satisfactory results. Until now users of accumulators for Hornby-Dublo purposes have had to employ the standard Hornby-Dublo Controller. Now they too can use the Battery Control Unit, which indeed is just as suitable for accumulator operation as it is for use with dry batteries. Connections from the accumulator to the Battery Control Unit, and from the latter to the track, also are made in exactly the same way as when a dry battery supply is being used.

Those without mains supplies have to use either accumulators or dry batteries, but sometimes I am asked by owners of private lighting plants generating say at 50 volts D.C. whether these supplies can be used. Where the apparatus includes a bank of 2-volt cells this is possible, for a tapping at 12 volts (6 cells) can be taken off the cells and led to a Battery Control Unit and thence to the track. But a word of warning is necessary—the tapping off operation *must* be carried out by a competent electrician.

An even stronger warning must be given against the use of D.C. mains supplies. We always advise against the use of these. Any scheme involving lamps or other resistances in conjunction with D.C. mains is dangerous, and no Hornby-Dublo Railway owner should ever contemplate adopting such a plan. There is always the risk of shock to the operator when methods of this kind are in use.

With batteries, accumulators and safe and efficient transformers working from A.C. mains available, every class of enthusiast is fully provided for without risk or trouble.

Several Hornby-Dublo locomotives are shown here including, in the foreground, the new B.R. 2-6-4 Tank.



New Coaches—New Trains

Putting the Hornby-Dublo 2-6-4 Tank to Work

LAST month the Secretary told you something about the new Hornby-Dublo B.R. 2–6–4 Tank Locomotive and no doubt many of you will already have taken the opportunity of examining this fine engine. There is another "on top" illustration this month showing how splendidly every detail is reproduced. This is the upper picture on the next page and it bears out fully the account of the engine that you have already read.

The 2–6–4T is included in two new Hornby-Dublo Train Sets, one Passenger, EDP13, and the other Goods, EDG18. Of these the Passenger set makes real news, because it includes the new Suburban Coaches, another valuable novelty in the Hornby-Dublo system. There are three of these vehicles in the Set—two Brake Thirds and one First-Third. These make up a typically handy unit for suburban train working. As there are two brake thirds, we can make up the trains correctly with a guard's compartment at each end, so that our three-coach suburban set is ready to run in either direction.

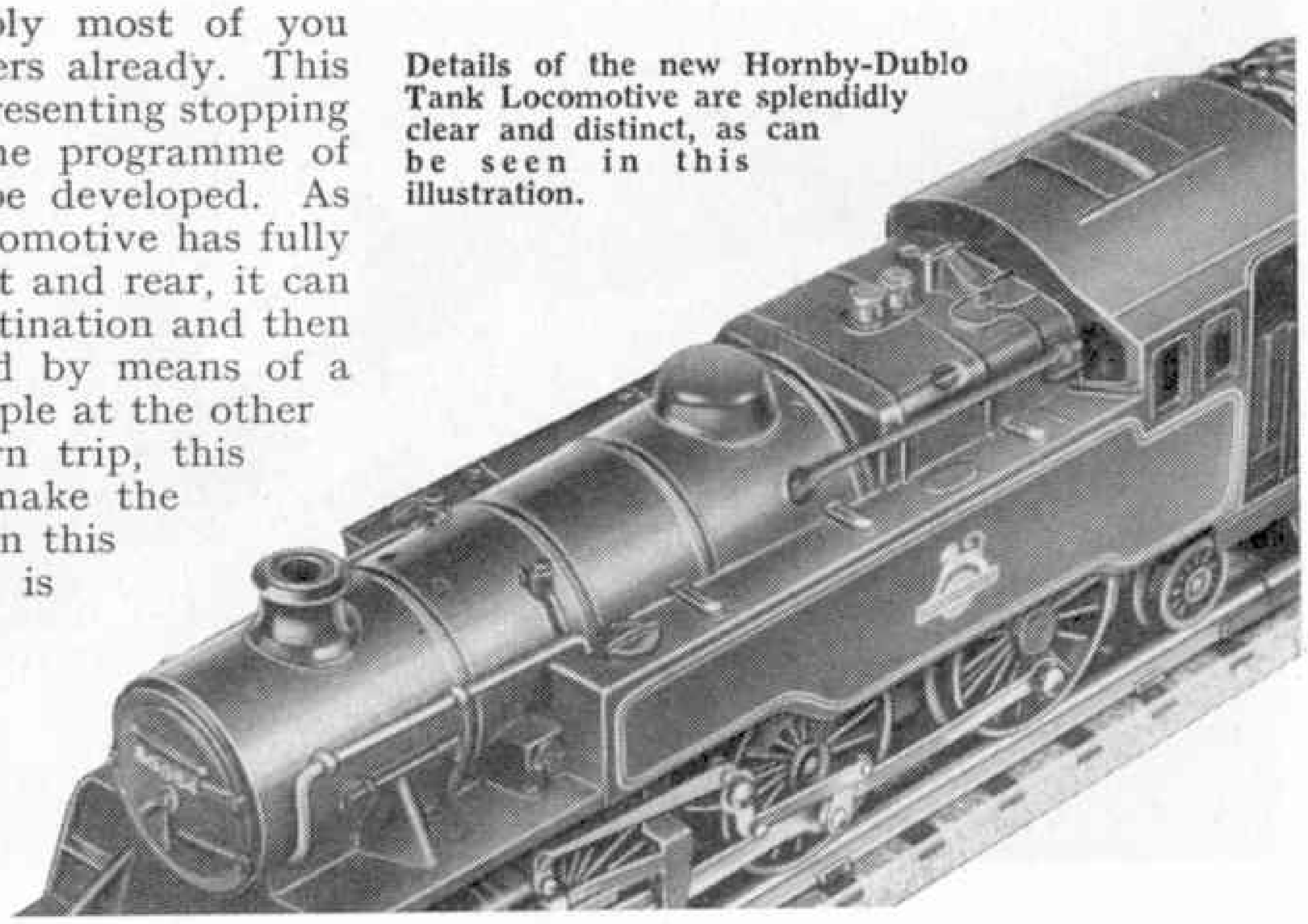
In the picture above the new Hornby-Dublo B.R. 2-6-4 Tank is gently backing a train of vans over a Level Crossing. This engine is specially suitable for mixed traffic duties.

The Coaches are well worth closer examination. They follow the usual Hornby-Dublo form of construction and the design of the tinprinted bodywork has been laid out to represent up-to-date steam type compartment stock. The brake thirds show five compartments for passengers, and on each side there are the usual pair of doors for luggage and another door for the guard, who is properly provided with end windows. These "windows," by the way, are not really actual openings in the bodywork; they are represented in a very convincing manner as part of the tinprint design. The first-third Coach has seven compartments. Three of them, in the centre of the vehicle, are for first class passengers, and at each end there are two for third class travellers. So, if a train is made up in the order intended with brake third, first-third and brake third again, the first class passengers in the middle of the train will be in the correct position to take advantage of the station awning!

As these new Coaches employ a similar base to that used for the Hornby-Dublo B.R. Eastern Region stock, they are of handy length for their job and do not occupy too much siding space. In fact a train of three of them headed by the new Tank Locomotive requires a space equal to three standard EDB1 rail lengths only. The sides of the new vehicles are finished in the all-over red employed for B.R. non-corridor stock, and with their light grey roofs they have a distinctly smart appearance.

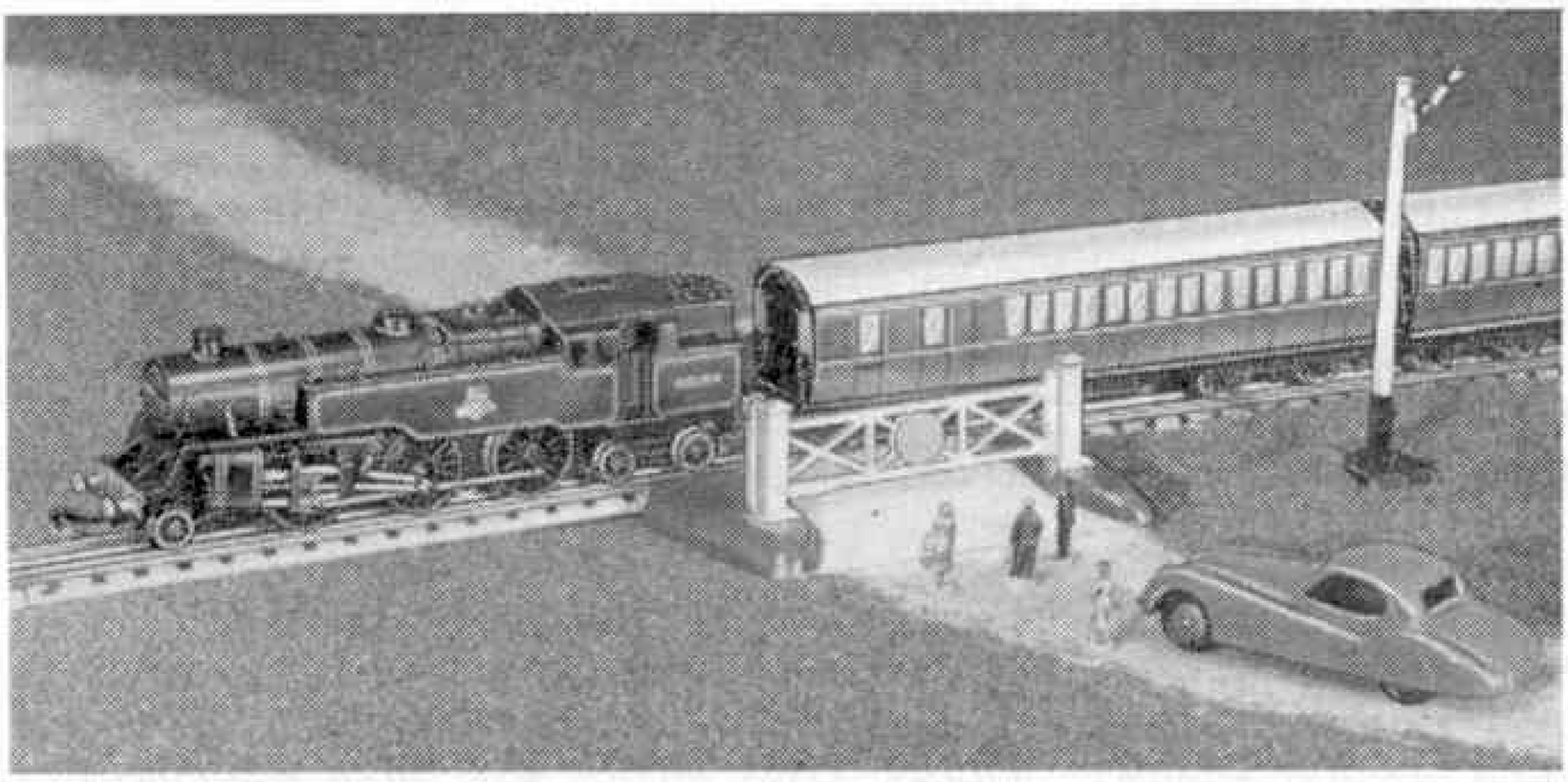
Having got our new set train, what can

we do with it? Probably most of you know some of the answers already. This new stock is ideal for representing stopping train services, and a fine programme of suburban working can be developed. As the new 2–6–4 Tank Locomotive has fully automatic couplings front and rear, it can work its train to one destination and then be uncoupled, run round by means of a loop line and then re-couple at the other end ready for the return trip, this time bunker first. To make the best use of the Coaches in this way, see that there is sufficient room for the train to stand in between the crossovers needed for the running-round movements.



Details of the new Hornby-Dublo Tank Locomotive are splendidly clear and distinct, as can be seen in this illustration.

The controllability of the new engine is specially valuable in operations of this kind. This is due to the adjustable shunt across the magnet that was referred to last month. Practised Hornby-Dublo engine drivers will bring the Locomotive to rest with the front coupling of the first Coach just clear of the ramp of the Uncoupling Rail. The ramp is raised, the engine backed up ever so slightly, so that the couplings between it and the leading Coach just separate. Now the engine can move ahead clear of the crossover points, which will be located near to the Uncoupling Rail, and the running-round operation can then be carried out.

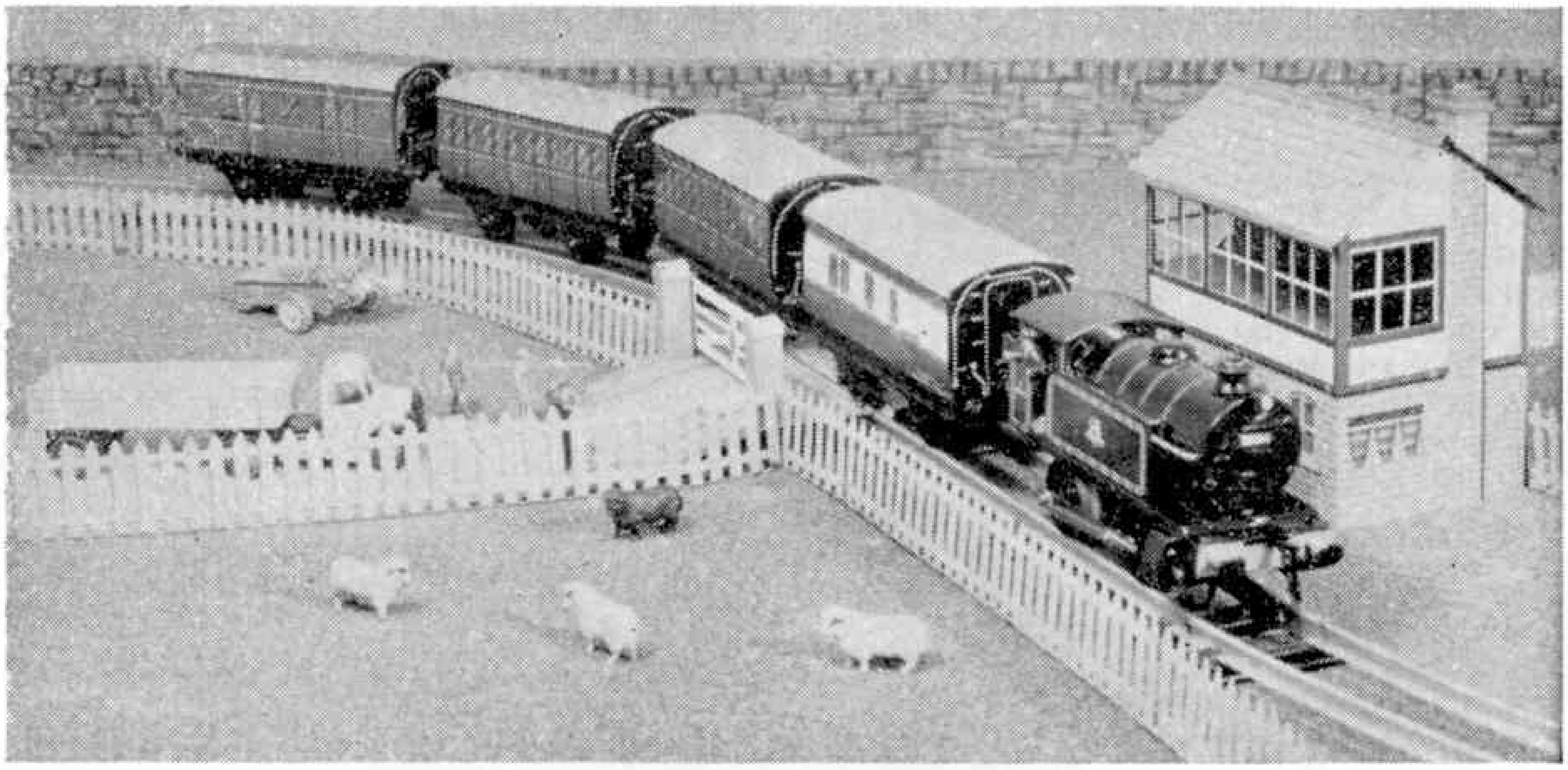


The new Locomotive heads a train of Suburban Compartment Coaches over a wayside crossing. These Coaches are included in the new Train Set referred to in this article.

There will be just as much enthusiasm for the EDG18 Goods Set as for the corresponding Passenger Set. In this the new 2–6–4 Tank has a train of those imposing bogie wagons of the Hornby-Dublo system, the High Capacity or Brick Wagon and the newer and very popular Bogie Bolster, with the Hornby-Dublo representation of the standard B.R. 20-ton goods brake van to bring up the rear. The attractive look that bogies give to the two Wagons is well in keeping with the massive appearance of the new engine, and owners of the Set will have the satisfaction of knowing that they possess a real aristocrat in the miniature train world.

Both Passenger and Goods Train Sets include the formation of Hornby-Dublo Rails now standard, making a simple continuous track consisting of two semi-circles joined by Straight Rails and requiring a space of 4 ft. × 3 ft.

A three-coach suburban train will not tax the capabilities of the new engine very much, but such trains can always be "strengthened," and long freight trains can be successfully worked; and there are of course always our old friends "the empties," possibly express and suburban passenger stock together, to be worked. I can foresee receiving reports of some prodigious feats of haulage by this powerful Hornby-Dublo engine.



Some Aids to Hornby Realism

WE all know that miniature railways are fun, and there is no excitement like that of running our first train. For a while we are content with that. Soon we get more ambitious ideas, because we realise that having a railway does not mean just running a train or two now and again without any real idea behind it.

This is where the development of the railway and the use of the extra items known generally as Accessories comes in. We had a word or two about several Hornby Accessories last month, including the always popular and very necessary Buffer Stop, Water Tank, Goods Platform and so on. The mere addition of Accessories such as these improves a layout almost out of all recognition, for it converts what is simply a plain track into something that looks more like a railway. But the result may be disappointing if we do not take special care to pick the sites for the different items that we are going to add to the track so that there really appears to be a reason for their being where they are.

Quite often therefore Hornby railway owners develop schemes, not only involving the use of various Accessories, but for the improvement of their setting as well. As an example let us take a look at the picture on this page. Here a Level Crossing has been added to the track and such a move in itself is always a step forward. It is however always possible to do better and so we extend the protection afforded by the crossing gates by adding fencing alongside the track. Fencing is quite easily made at home either from wood strip or even card and there is plenty of variety in the types of fencing we can follow, and in the methods we adopt to reproduce them for our own layout. A railway ought to be fenced anyway, and where this is done the miniature railway property is accurately defined.

Another thought prompted by the Level Crossing is that there should be a road or at least some sort of track leading to it. So between the "fields" forming part of the lineside here we find a stretch of plain baseboard that gives the effect of a roadway. The Dinky people who use this crossing are lucky, for there is a Signal Cabin near by and the crossing gates are therefore operated by the signalman. This ensures that miniature pedestrians and of course Dinky Toys lorries will have safe passage across the line.

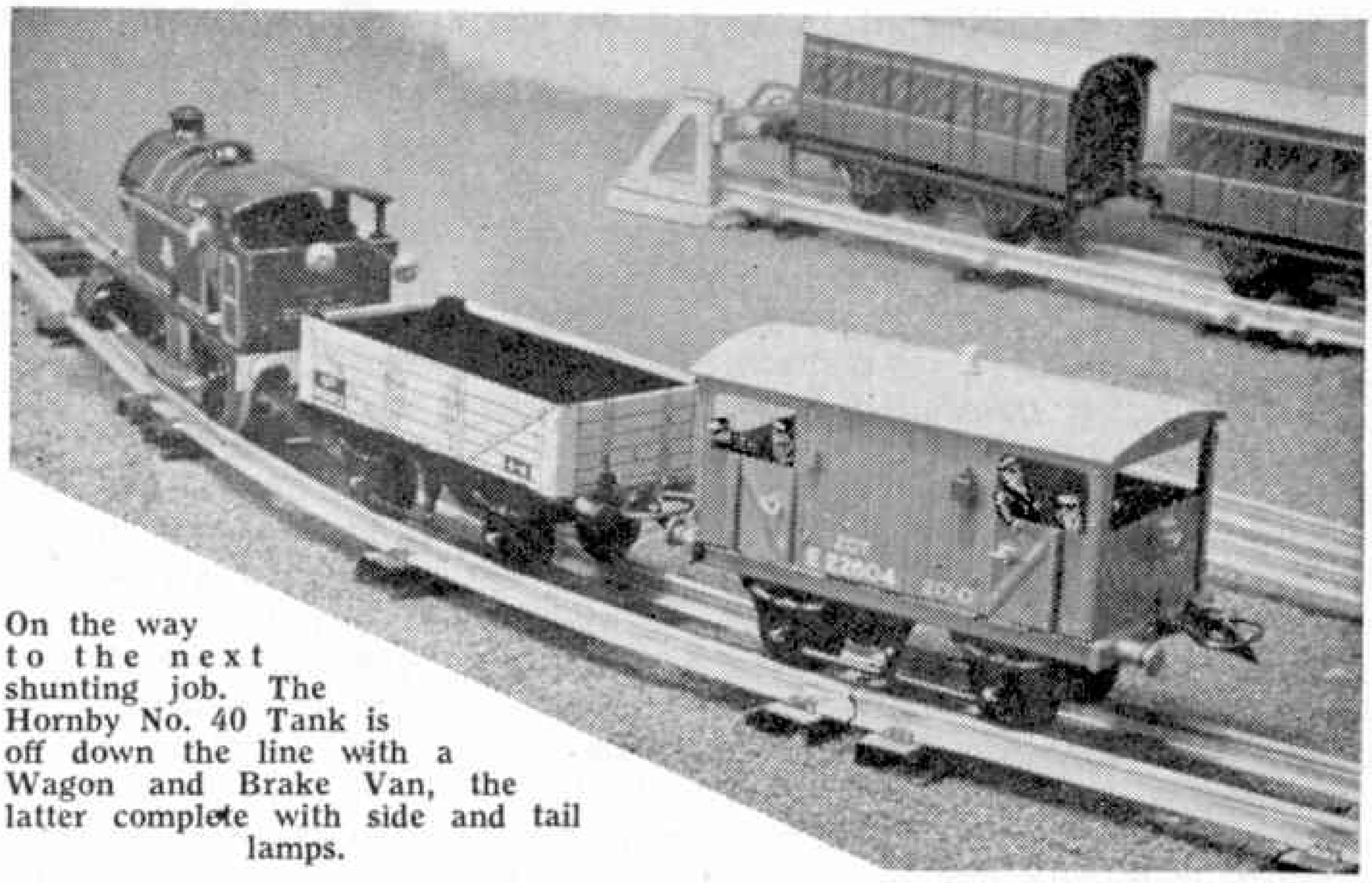
The stopping train on this Hornby railway wends its way past a Level Crossing. Dinky Toys figures and vehicles help the effect considerably.

Finally, the edge of the layout is finished off with a low wall, which is better than leaving the edge of the baseboard to look after itself. The wall does suggest that there is something beyond and leaves the rest to the imagination. Such walls are easy to make of thin wood or even good

thick card, the necessary details being either painted on or applied by means of the numerous brick- or stone-type building papers that can be obtained nowadays at many hobby shops.

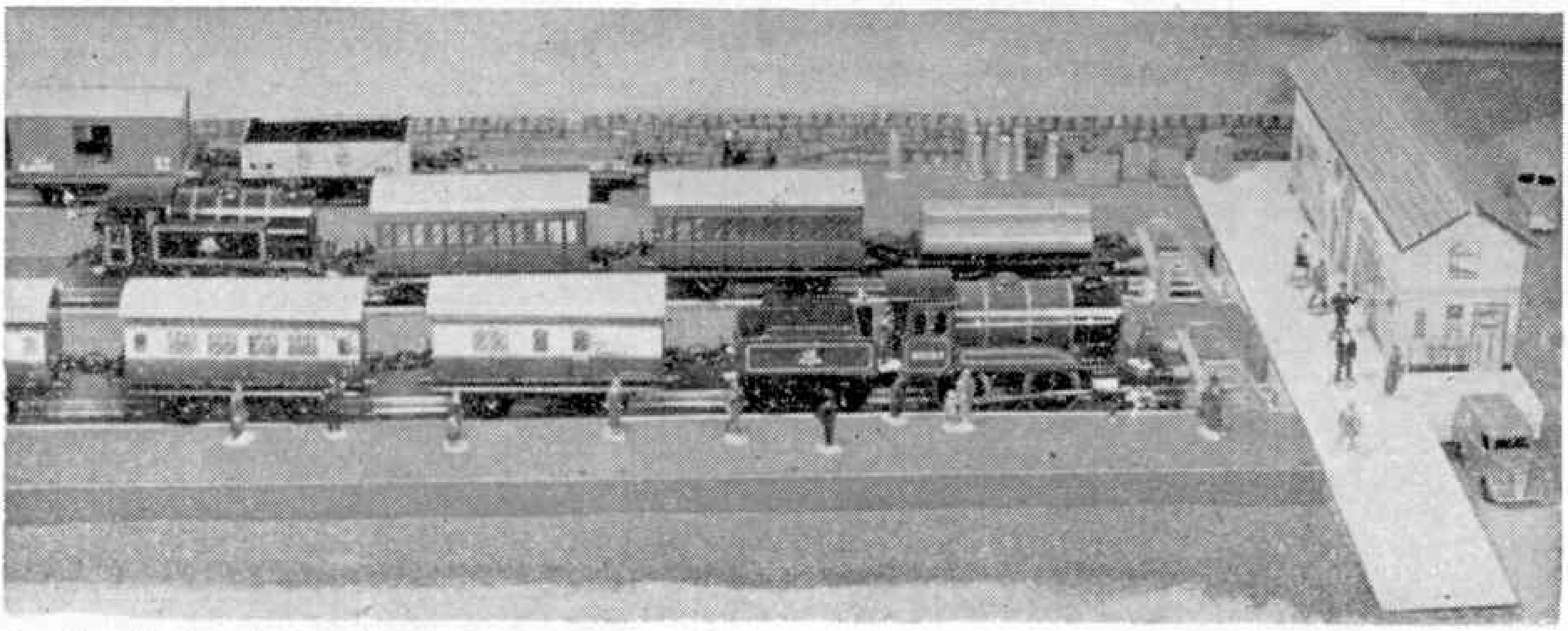
The wall idea appears again in the station scene illustrated on this page. Here there is a well developed idea for using the standard Hornby Station as the basis of a terminus. Layouts with a terminus have much to commend them, but unfortunately in these days the difficulty is the lack of space that prevents Hornby train owners from following up such ideas. Sometimes of course a non-permanent layout consisting simply of a terminal station, its sidings and so on will be arranged by a Hornby train owner, either as a change from the usual continuous running or to stage a scene of typical terminal station activity in which Trains, Accessories, miniature figures and other items can all play their parts.

This in fact is the situation in the illustration. The main platform and building of the standard Hornby No. 3 Station being set down to form the "concourse" or circulating area of a terminus, the actual platforms for the trains project at right angles; and these platforms can be made of suitable lengths of wood or, once again, built up from card. We note from our correspondence that many Hornby railway owners are adept at this type of construction, so here is a chance for them to make some simple, but very effective, pieces.



On the way to the next shunting job. The Hornby No. 40 Tank is off down the line with a Wagon and Brake Van, the latter complete with side and tail lamps.

You will notice that the far platform next to the boundary wall has a bay let into it that is shorter than the other roads. This is quite an idea where there is sufficient space for this sort of thing. This bay is particularly well adapted to the end loading of the rail vehicles, such as is necessary with certain types of traffic, the familiar Flat Truck being a specially useful rail vehicle for this purpose. Such bays can be found at most big stations.



An attractive terminal station arranged by means of lengths of home-made platform added to the standard Station. Such schemes are good fun to arrange and they do make possible some realistic effects.

More about Hornby-Dublo Signals

LAST month we had a brief talk on the uses of the simplest signals in the Hornby-Dublo system, the standard Single Arm Home and Distant Signals. This month we go a step further and see what the Double Arm Signal is, and how we can use it.

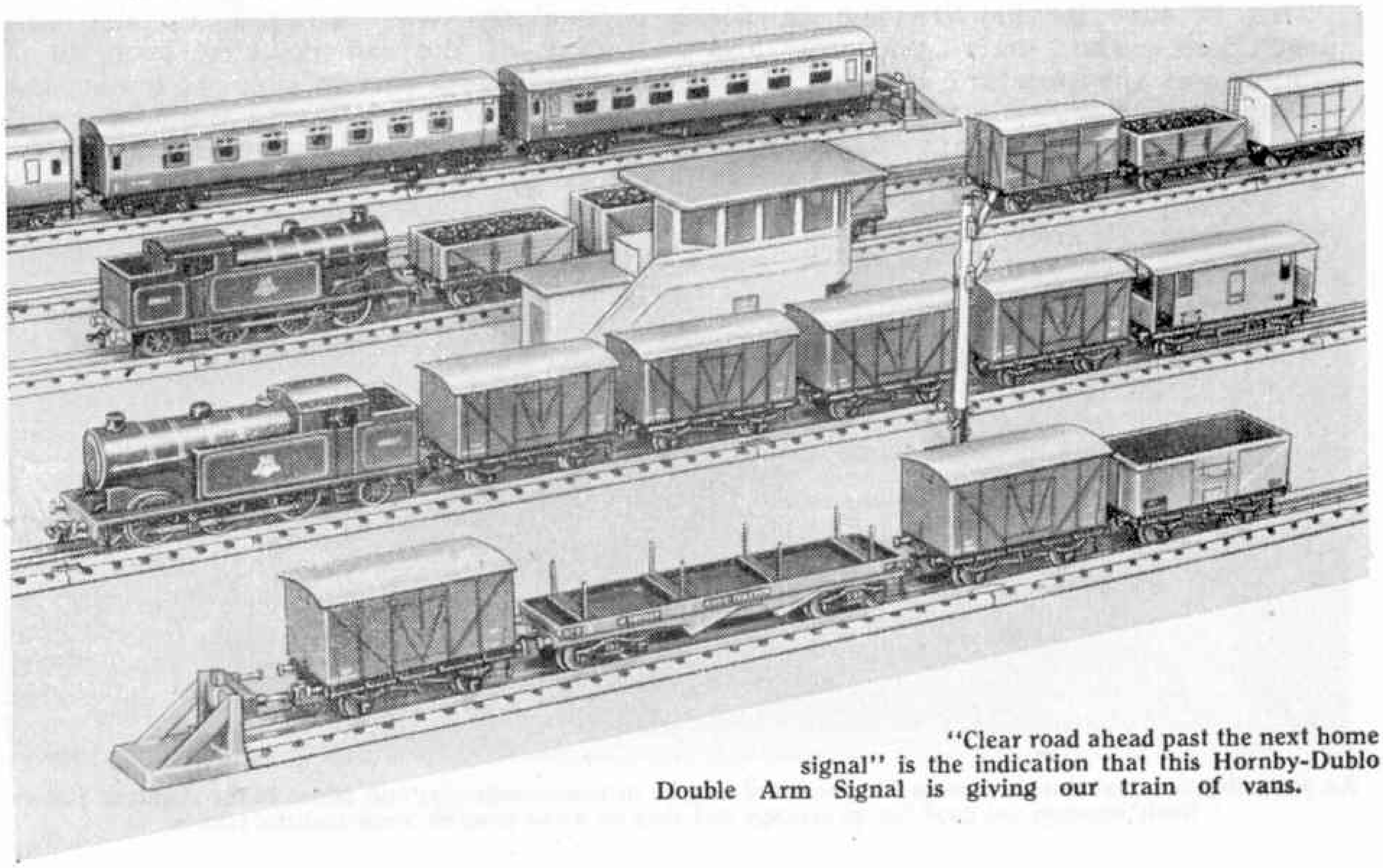
The Double Arm Signal is really a combination of the two types of Signal dealt with last month. It has two arms or semaphores on the same post, one mounted above the other, and it is always the stop or home one that is uppermost. Perhaps some of you have been puzzled by real signals of this combined type, wondering why at times both arms can be seen in the "line clear" position, while at others only the upper arm is worked.

As you will have gathered from last month's talk, the distant signal is placed before the home signal to which it is related, because its purpose is to give an advance indication to the driver of the position of the home semaphore. In busy areas where stations, junctions and other points requiring the home type of signal are close together, there is not always a sufficient length available to allow separate distant signals to be placed far enough away from the corresponding homes. A distant arm therefore is placed on the same post as the preceding home arm, and this gives us the type of double arm signal that we are considering in the Hornby-Dublo system.

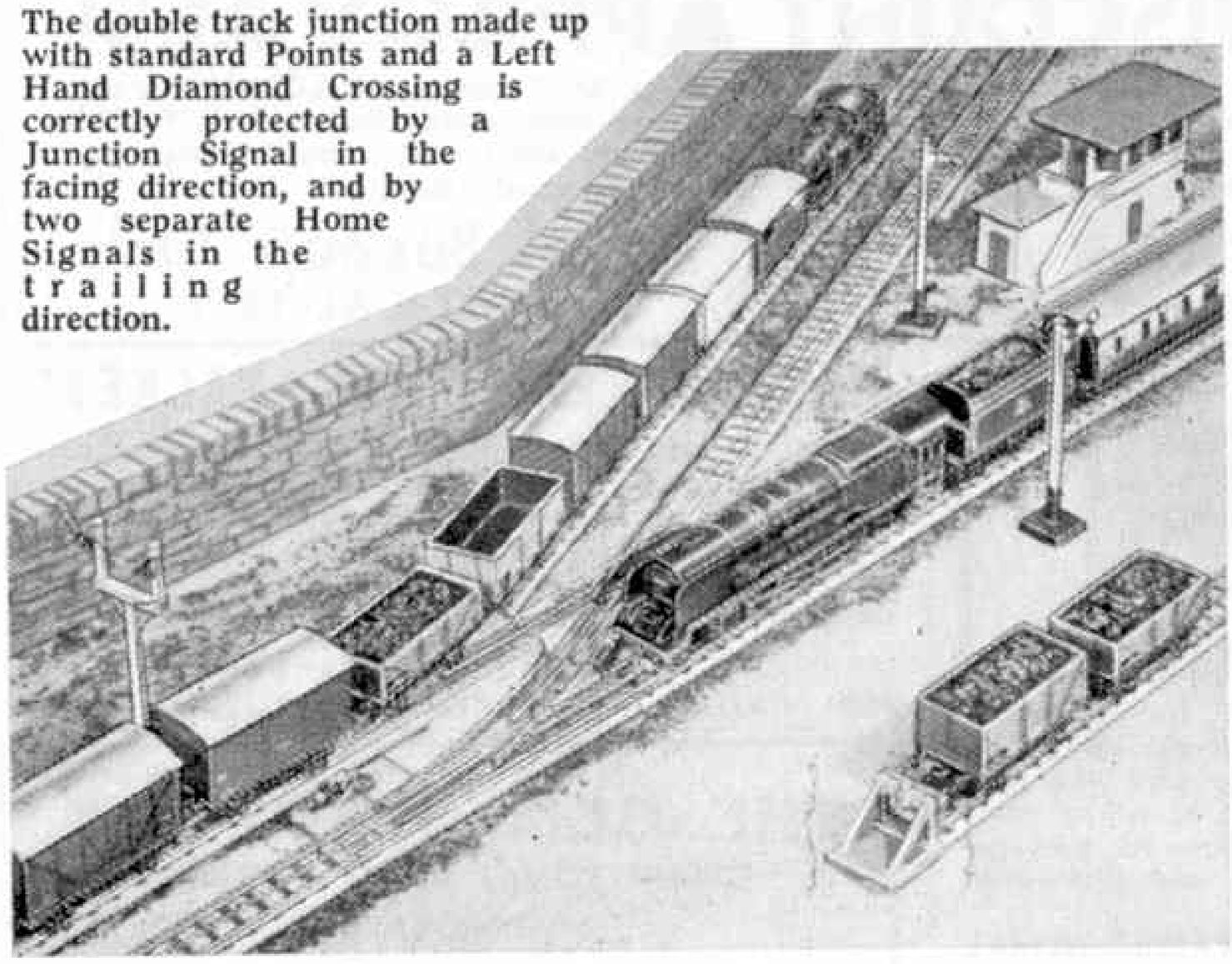
On a Hornby-Dublo railway, in fact on almost all miniature systems, there are plenty of places where the double arm type of signal can be used. Sections are short in miniature anyway, and frequently the only way to provide the signalling required through a busy area is to employ a succession of Double Arm Signals. Apart from the fact that they look good with their combination of red and yellow arms, the Hornby-Dublo owner who employs them correctly has the satisfaction of knowing that these Signals are used with a definite purpose in view.

What, then, is the situation if a train approaches a double arm signal and finds the upper arm only showing "Line clear?" Well, the answer is really quite simple: the road is clear up to the next signal. The train therefore can go on its way, but there is a warning that the next signal may be in the stop position by the time the train reaches it. So the train must be ready to halt there.

If both arms of the double arm signal are



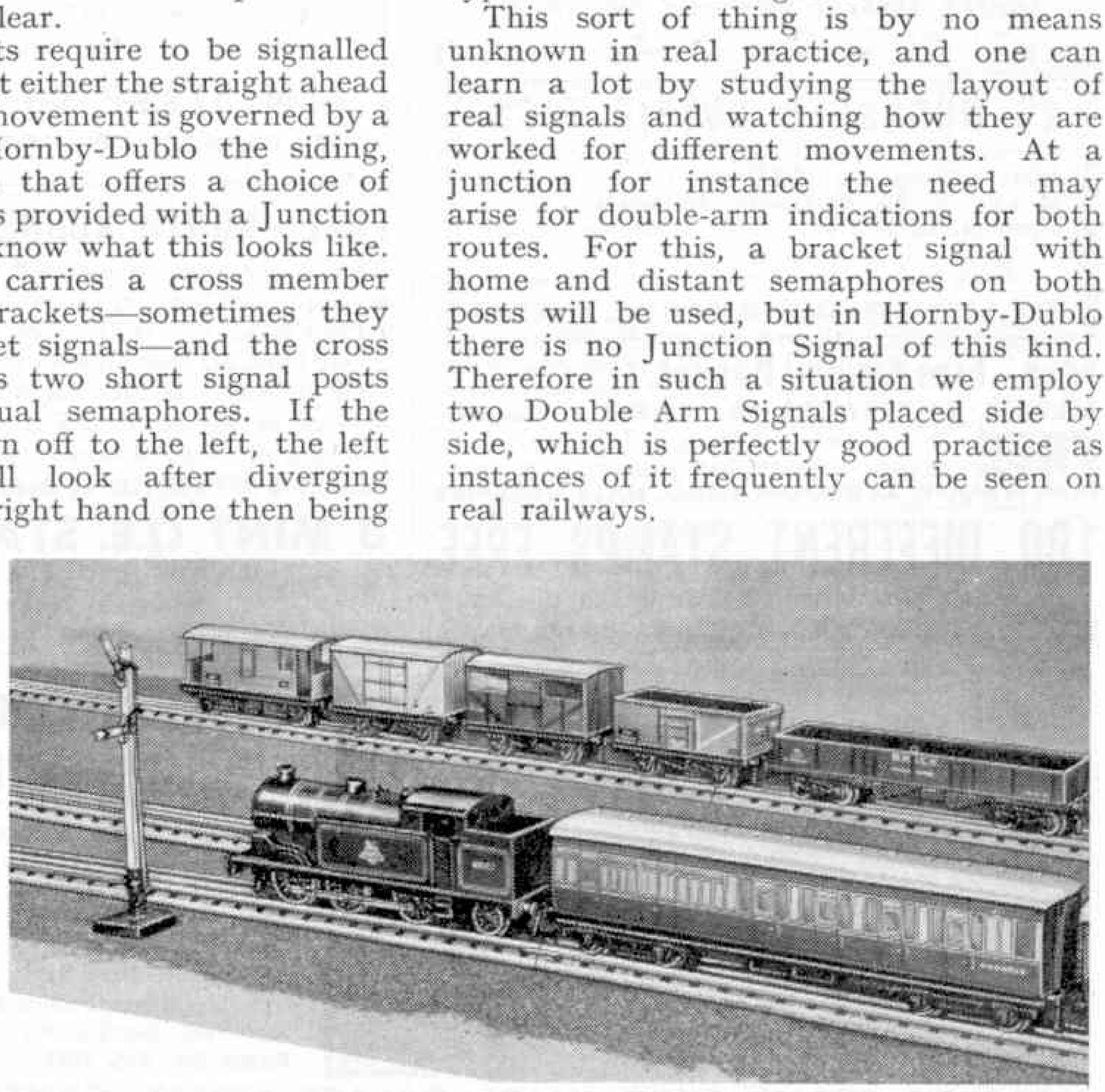
"Clear road ahead past the next home signal" is the indication that this Hornby-Dublo Double Arm Signal is giving our train of vans.



The double track junction made up with standard Points and a Left Hand Diamond Crossing is correctly protected by a Junction Signal in the facing direction, and by two separate Home Signals in the trailing direction.

in the "Line clear" position, the train can carry on and will find the next signal showing "Line clear" as well. In real working the distant arm cannot show "Line clear" while the home arm on the same post says "Stop". Both of them exhibit the normal horizontal aspect when the way is not clear.

Facing turnouts require to be signalled in such a way that either the straight ahead or the diverging movement is governed by a signal. So in Hornby-Dublo the siding, loop or junction that offers a choice of routes to a train is provided with a Junction Signal. You all know what this looks like. The main post carries a cross member supported by brackets—sometimes they are called bracket signals—and the cross member supports two short signal posts carrying the usual semaphores. If the facing Points turn off to the left, the left hand signal will look after diverging movements, the right hand one then being concerned with the movement of trains going straight ahead. If the turnout is a right hand one, then the opposite arrangement applies.



"Home off, distant on." So this passenger train must be ready to stop at the next Home Signal, if necessary.

It is good to be able to provide corresponding distant indications, so that the state of the junction will be made known in good time to the driver approaching it. So in addition to the Home type of Junction Signal, which is necessarily by the actual turnout, as shown in the picture above, there is a corresponding Distant Junction Signal.

With this total of what we may call five basic signals in the Hornby-Dublo System, the majority of train movements can be signalled satisfactorily. One never has the space to provide quite as complete an equipment of Signals as is necessary in real practice, where special track formations are provided with signals to suit them. Still, in Hornby-Dublo one can often get over problems that arise by the use of a combination of the different types of standard Signals.

This sort of thing is by no means unknown in real practice, and one can learn a lot by studying the layout of real signals and watching how they are worked for different movements. At a junction for instance the need may arise for double-arm indications for both routes. For this, a bracket signal with home and distant semaphores on both posts will be used, but in Hornby-Dublo there is no Junction Signal of this kind. Therefore in such a situation we employ two Double Arm Signals placed side by side, which is perfectly good practice as instances of it frequently can be seen on real railways.

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For other Stamp Advertisements see also pages 610 and xxii

Stamp Collectors' Corner

By F. E. Metcalfe

SOUTH AFRICA'S ZOO

SOME time ago certain newspapers had the story that South Africa had not had a new set of stamps for umpteen years. This is not correct, for this country has been bringing out new stamps or varieties of existing stamps all the time; yes, all the time, for South Africa uses an enormous number, with regular printings, and these have varied to such a degree that philatelists have been having the time of their lives. It has been the writer's job to list the stamps and varieties that have appeared since the beginning of the reign of King George VI, and this particular task, interesting though it was, called for more time and patience than that of dealing similarly with the stamps of any other half dozen countries in the Commonwealth. But it certainly was fun!

Anyhow what I want to concern myself with now is the new set that appeared on 14th October last. What a set it was! Fourteen values, each depicting a wild animal, and demonstrating pictorially just what a zoo that great country South Africa is.

I am dealing with the set this month, but before doing so I should like to run over the philatelic history of South Africa since it became the Union in 1910. Previously, various stamps had been in use for parts of this territory, including the fabulous Cape Triangulars, etc. But on 10th November 1910 the Union issued its first definitive stamp, a large blue affair in an elaborate frame, on which figured the arms of the Cape of Good Hope, Natal, Orange Free State and Transvaal.

This stamp is now catalogued by Gibbons at 7/– mint and 4/– used, and is worth about half that price. This is rather surprising, for it was on sale for three years and must have been used extensively. There may be a lot of detail about the design, but the stamp is quite a good looking one with which to start off a country.

In 1913 we got a very plain Jane of a set—just a portrait of King George V in a neat frame. These stamps were the size of our own low values. Now this is when the philatelic fun started that South African stamps have provided, with shades, perforation varieties, etc. To get all the stamps of this set that are catalogued would cost a mint of money. The two shades of the £1 value are listed at £20 and £22 respectively mint, and a quarter of that used. On top of all that we have a double print variety that is listed mint at £80. We had better pass on. But we don't get much relief from the next issue of 1925,

this time an air set of four values that is catalogued at nearly £4. And you would not be paying too much if you bought at half catalogue.

There have been a number of colourful commemorative sets, but it is the so called definitive issue of 1926–54 that has provided collectors with much of the fun. All collectors will have seen some of these stamps, with the springbok design on the ½d. value, Van Riebeeck's ship on the 1d., the orange tree on the 6d., and so on. Messrs. Waterlow and Sons printed the first values, but later the Government Printer at Pretoria took over the task, and task it has been to provide all the millions of stamps that South Africa needs.

Incidentally at odd times I have been asked what the ½d. stamps all green and the 1d. stamps carmine-magenta are, for they differ from the ordinary stamps with the black centres. These are from coils, which go into the stamp machines, though I have never found out why they differ from the ordinary run.

But to get back to the 1926 definitive set. It would be rather beyond a new collector to try and gather all the items that are to be found in this set. A glance at the Commonwealth Catalogue will show why. There are all kinds of printing varieties, but anyone could go in for picking up the different shades and as there are an awful lot of used about, quite a nice lot could be got together for very little. But don't forget that used pairs are much more desirable than singles.

The new set I would recommend to all but the expert. First, the stamps are bi-lingual, that is they have the name of the country in both English and Afrikaans, an arrangement that should always have been adopted as far as collectors are concerned. Now we need only collect singles, whereas before pairs had to be obtained, and didn't they split easily! In the case of mint stamps this was disastrous.

So we need only singles of the new set, and thematic collectors who go in for animal stamps—there are many thousands of these in Britain alone—will roll their eyes when they read the following list of animals and values—½d., wart hog; 1d., black wildebeest; 1½d., leopard; 2d., zebra; 3d., rhinoceros; 4d., elephant; 4½d., hippopotamus; 6d., lion; 1/–, kudu; 1/3, springbok; 1/6, gemsbok; 2/6, nyala; 5/–, giraffe; and 10/– sable antelope. I have chosen the stamps depicting animals which will not be well known to the average collector, such as the nyala, kudu, etc.—we all know what a lion and a giraffe look like—and as an example of utter unloveliness just look at the wart hog on the lowest value. Was an animal ever better named?

By the way, ignore the white lines seen here. They do not appear on the actual stamps.

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For other Stamp Advertisements see also pages 608 and xxii

Stamp Gossip

MARCO POLO

THERE must be a host of Meccano collectors who will be particularly interested in the pair of stamps that Italy issued recently to commemorate the birth of Marco Polo, one of the world's greatest travellers. What a fine sounding name for such a man!

This great Venetian was born in 1254. A son of traders, he was taken away to the East while in his teens by his father and uncle. When they arrived at the court of Kublai Khan, the latter employed Marco in various ways, and actually was loath to part with him. But after many adventures and wanderings, the Polos arrived back in their own country in 1292, or just two hundred years before Columbus made his great journey to the West. Later Marco was taken prisoner when war broke out between Venice and Genoa. While languishing in gaol, he dictated an account of his adventures, and this has been handed down to us as an entrancing record of long ago. He died in 1324, and no wonder that the two stamps honouring such a romantic figure are proving very popular.

PHOTOGRAPHY

Our Editor received a very fine first day cover when the U.S.A. issued a stamp in commemoration of the 100th anniversary of the birth of George Eastman, who is described by Americans as the father of modern photography. With his Kodaks he undoubtedly did more than his bit to bring the hobby, or art, whichever you will, within the reach of all. He really needs no introduction, for his work is known to all, but it must be said that he well earned the honour of having a stamp issued in his name.

LOCALS

A number of collectors have been enquiring about the status of the "Coronation stamps" issued by the owners of Lundy and Herm Islands. These will not appear in the catalogues, because they are not issued by the Post Office, and though they perform a kind of postal service, our own postal administration will not even allow them to be stuck on the fronts of envelopes. They are used on letters carried from the islands to the mainland, and to specialists at least they are of interest. Put one or two in your collection by all means, but do not pay any fancy prices, for they are never likely to become expensive.

A ROTARY STAMP

Stamps have been issued in the past in honour of the Rotary movement, and now Belgium has added to their number with a set of three stamps to commemorate the 5th Regional Conference of the Rotary International in Europe, which was held in Ostend from 10th to 13th September. Incidentally the 50th anniversary of the founding of Rotary was celebrated by the same issue.

The set only costs a little above a shilling, so that those interested can easily obtain one. The stamps are line engraved, and as can be seen from the illustration the designs are neat and attractive.

JETS

I suppose that no country issues more interesting stamps than France, and among the beauties issued recently by that country was one depicting a jet fighter. At least I hope it is a jet fighter, for while I may know a bit about stamps I could know more about 'planes than I do, and in such company as *M.M.* readers, who know all there is to know about such things, one must be very careful. But jet or no jet, I do like the stamp, particularly the natural way the clouds below are shown.

A collection of modern French stamps, which are mostly line engraved, makes a show second to none. If you have not much money to spend on the hobby, you could do worse than collect post war France. Prices are reasonably low, and for a few shillings quite an attractive show can be gathered.

OUR OWN STAMPS

Recently I got a letter from a reader complaining that in my enthusiasm for foreign stamps I rather ignore our own colonial issues. I don't think that is so really, for my own personal taste leans to our own stamps. But so many beautiful stamps are issued abroad that really one cannot overlook them. The Yugoslavia set described recently provides good examples, and few stamps equal those of France.

Among modern colonials there are many beauties, and to pacify the critics I am asking the Editor to reproduce a recently issued stamp for Malta. It is one of a set of three issued 8th September to commemorate the Centenary of the Dogma of the Immaculate Conception. The design is a reproduction of the centre altar-piece of the Collegiate Parish Church, Cospicua.

Competitions! Open To All Readers

Prize-winning entries in M.M. competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

Can You Find These Hidden Names?

Various competitions arranged on this page during the past year or so have shown that readers of the *M.M.* are well acquainted with the names of current makes of motor cars, motor lorries and aircraft. Our first competition this month provides an excellent opportunity to put this knowledge to good account.

The panel in the centre of this page shows 100 letters, which have been arranged so that the names of certain motor cars, motor lorries and aircraft, such as the Austin *Devon*, Thornycroft *Nippy* and D.H. *Comet*, can be read in them. But keep in mind that only the names *Devon, Nippy* and *Comet* would qualify for inclusion; those of the makers are not used. These three examples, by the way, are *not* included in our word square.

The plan is to pass from one letter to the one above it, below it or to one side of it. Diagonal moves are not allowed. Every letter in the rectangle must be used at least once, but many are used twice, and in some instances a letter actually appears in several different names. When you have traced all the hidden names, or as many of them as you can, write out a list of them, in each case stating also the maker of the vehicle or aircraft concerned. Do not forget to write your name, address and age on the back of your list.

S	S	E	H	L	I	N	L	A	L
A	A	R	A	R	T	N	U	S	P
B	D	O	M	Y	S	L	O	N	I
M	O	N	A	U	S	E	C	E	P
A	R	R	O	P	R	I	N	T	A
T	A	N	T	F	E	L	A	H	X
N	D	O	C	E	R	N	I	F	L
A	B	R	S	A	B	D	E	N	O
L	O	L	R	I	H	I	R	E	W
L	I	S	A	P	P	L	A	G	N

As usual there will be two sections, for Home and Overseas readers respectively. In each section there will be prizes of 21/–, 15/– and 10/6 for the best entries in order of merit, and Consolation Prizes for other good efforts. In the event of a tie the judges will take novelty and neatness into consideration. Entries must be addressed *Hidden Names Contest, Meccano Magazine, Binns Road, Liverpool 13.* The closing date in the Home section is 31st January 1955, and in the Overseas section 30th April 1955.

"Go As You Please" Painting Competition

M.M. drawing competitions always produce an excellent crop of entries, and invariably a large number of these are in colour. This month therefore we are allotting our painting enthusiasts a competition to themselves—the first such for over a year—and in order to encourage every reader who likes painting to "have a go" we are not limiting it to any particular subject. The painting can be of an aeroplane, motor car, ship, street scene, the countryside, or of anything else. It can be done in soft pastel shades or be as vividly coloured as the competitor wishes, but it must be borne in mind that the judges will assess the entry on its merits as a painting and not on colouring alone. All entries must be the unaided work of competitors, who must state exactly what their painting represents, and write their full name, address and age on the back of their entry.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. Each competitor must state in which section his painting is entered. There will be separate Overseas sections, and in each section prizes of 21/–, 15/– and 10/6 will be awarded. Other good efforts will be awarded consolation prizes.

Entries should be addressed: *December Painting Contest, Meccano Magazine, Binns Road, Liverpool 13.* The closing dates are: Home Section, 31st January 1955; Overseas Section, 30th April 1955.

Competitors who desire their entries to be returned should read carefully the important paragraph at the top of this page.

Competition Results and Solutions

HOME

MAY 1954 CROSSWORD PUZZLE

1st Prize: K. B. Turner, Wallington. 2nd Prize: K. Stephenson, Darlington. 3rd Prize: F. J. McLernon, Magherafelt, N. Ireland. Consolation Prizes: T. Mann, Thornton Heath; C. R. M. Boote, Cheltenham; A. B. Partridge, Northampton.

MAY 1954 AIRCRAFT CONTEST

1st Prize: M. H. Coombes, Southampton. 2nd Prize: J. S. Roberts, Saffron Waldon. 3rd Prize: J. E. Blake, Sidcup. Consolation Prizes: A. Allison, Upton; T. Coates, Nottingham; J. M. Vallance, Clarkston; J. M. Douglas, Little Sutton.

JUNE 1954 MOTOR SLOGAN CONTEST

1st Prize: R. M. Pring, Ringwood. 2nd Prize: P. Davey, Bexleyheath. 3rd Prize: E. C. Povey, Chittlehampton. Consolation Prizes: J. Davies, Birmingham 5; M. Little, Taunton; F. Mitchell, Oldham.

JUNE 1954 FILM STORY CONTEST

1st Prize: N. Christian, Blaenau Festiniog. 2nd Prize: C. Chinery, Colchester. 3rd Prize: D. Canning, Askern. Consolation Prizes: B. H. Sanderson, Halifax; N. G. Clark, St. Helens; E. Williams, Bridgend.

JULY 1954 FREIGHT TRAIN CONTEST

1st Prize: D. Wilson, Stafford. 2nd Prize: G. Corbett, Ruislip. 3rd Prize: J. D. Rhodes, Nottingham. Consolation Prizes: P. C. Harrod, Hessle; J. Corner, Basingstoke; J. Porter, Wolverhampton.

JULY & AUGUST 1954 SUMMER HOLIDAY PHOTOGRAPHIC CONTEST

1st Prize, Section A: J. W. Whitelaw, Harpenden; Section B: J. A. Kirby, London N.W.5. 2nd Prize, Section A: J. K. Addy, Stocksbridge; Section B: D. Robinson, Potters Bar. 3rd Prize, Section A: J. Langton, Birmingham 14; Section B: R. Bottomley, Triangle. Consolation Prizes: D. G. Gee, London N.3; M. Pledger, Louth; P. Boath, High Wycombe; R. Couchman, Pershore; J. Cunneen, Birmingham 12.

OVERSEAS

FEBRUARY 1954 MOTOR CAR DRAWING CONTEST

1st Prize, Section A: P. N. Dickson, Pietermaritzburg; S. Africa; Section B: E. Baker, Petone, N.Z. 2nd Prize, Section A: T. King, Christchurch, S.E.2, N.Z.; Section B: G. L. Miles, Salisbury, S. Rhodesia. 3rd Prize, Section A: B. Jeffery, Croydon Park, S. Australia; Section B: K. J. Ralph, Sydney, Australia. Consolation Prizes: R. T. C. Harman, Christchurch, N.Z.; S. M. Sanganeria, Bangalore, India; G. Humphreys, Dublin, Eire; P. Winter, Moratuwa, Ceylon; P. Karsenberg, Amsterdam, Holland; D. M. Paige, Calgary, Canada.

FEBRUARY 1954 LOCOMOTIVE SHADOW CONTEST

1st Prize: H. L. Hansen, Oslo, Norway. 2nd Prize: A. T. K. Mackenzie, Greymouth, N.Z. 3rd Prize: P. Osman, Dusseldorf, Germany. Consolation Prizes: M. N. Phillips, Durban, S. Africa; L. E. Duncan, Winnipeg, Canada; R. Ferguson, Illinois, U.S.A.

MARCH 1954 PRICE CODE CONTEST

1st Prize: W. E. M. Carroll, Lower Hutt, N.Z. 2nd Prize: C. S. Wickramasinghe, Colombo 5, Ceylon. 3rd Prize: B. P. England, Christchurch S.E.3, N.Z. Consolation Prizes: P. Crisp, Papakura, N.Z.; J. Richard, Geneva, Switzerland; S. D. Sule, Bombay 28, India; A. Treil, Pas-De-Calais, France.

APRIL 1954 LOCOMOTIVE CONTEST

1st Prize: M. Leah, Port Elizabeth, S. Africa. 2nd Prize: K. D. Bozzi, Geneva, Switzerland. 3rd Prize: 22526748 L/Cpl. Mackenzie, K., B.A.O.R. 34. Consolation Prizes: W. Davies, Stanger, S. Africa; C. F. Richardson, Ohakune Junction, N.Z.; R. Abell, Winnipeg, Canada.

SOLUTIONS

APRIL 1954 LOCOMOTIVE CONTEST

1. Lamp iron. Secures headlamp in position. 2. steam pipe casing. Covers lagging to minimise loss of heat from steam pipe to cylinders. 3, Handrail. Assists crew and workmen walking along steel plate platform. 4. Stuffing box. Steam gland to prevent leakage of steam at point of entry of regulator shaft into boiler. 5. Outer casing of Belpaire firebox. Covers heat insulation material over the firebox. 6. Inspection cap. To facilitate inspection of firebox crown and stays. 7. Cab side door. For safety and to prevent draughts. 8. Water pick-up dome. Deflects water from scoop into tank. 9. Buffer. Absorbs buffing shocks. 10. Tender axlebox. Housing for axle roller bearing. 11. Connecting rod. Transmits reciprocating motion of piston to rotary motion of driving wheels. 12. Slide bars. Support crosshead which connects piston and connecting rods.

MAY 1954 AIRCRAFT CONTEST

1. Demon, U.S.A., McDonnell Aircraft Corp., naval fighter, 2. Viscount, G.B., Vickers-Armstrongs Ltd., commercial transport. 3. Otter, Canada, De Havilland Aircraft of Canada Ltd., light transport. 4. Gannet, G.B., Fairey Aviation Co. Ltd., anti-submarine duties. 5. Tornado, U.S.A., N. American Aviation, light tactical support bomber. 6. Consul, G.B., De Havilland Airspeed, short range transport. 7. Beaver, Canada, De Havilland Aircraft of Canada Ltd., light transport. 8. Solent, G.B., Short Bros. and Harland Ltd., commercial seaplane. 9. Comet, G.B., De Havilland Aircraft Co. Ltd., jet airliner. 10. Panther, U.S.A., Grumman Aircraft Eng. Corp., naval fighter. 11. Victor, G.B., Handley Page Ltd., bomber. 12. Hunter, G.B., Hawker Aircraft Ltd., fighter.

May 1954 Crossword solution.

Ferryfield—(*Continued from page 570*)

by the Ministry of Transport and Civil Aviation, a landing fee had to be paid every time one of Silver City's aircraft touched down there, and this added to the fares which passengers had to pay. Yet, although these fees have totalled about £75,000 since the air ferry started in 1948, the Ministry have done little to develop Lympne into a modern efficient airport. It is still only a grass field, with no runways, and becomes waterlogged regularly in bad weather. It was, in fact, the uncertainty about Lympne's future, and its shortcomings, that prompted Silver City to build Ferryfield.

So, since 4th October, Ferryfield has been the terminal for three of the main air ferry services, to Le Touquet, Calais and Ostend. Other services link Gatwick and Le Touquet, Eastleigh and Cherbourg. Over the five routes will travel at least 45,000 vehicles and 100,000 passengers every year.

Yet this is only a start. The Ministry of Transport and Civil Aviation recently granted Silver City permission to operate helicopters over all their cross-Channel routes. Already, proving flights have been made with a Westland S-51, and a regular freight service with this aircraft is planned for next spring. In due course, when big twin-engined helicopters are available, Ferryfield may become the terminal for the world's first helicopter vehicle and passenger ferry. It would be impossible to find a better one for it is the nearest British civil aerodrome to France.

Christmas Pie—(*Continued from page 576*)

were staged. When Pompey opened his theatre in 55 B.C. the programme lasted five days, during which period over 500 lions and 25 elephants were destroyed.

The father of the English circus was Philip Astley, who in 1770 roped off an arena in an open field close to the site of the present Waterloo Station. The late Bertram Mills started his circus career as the result of a wager. He remarked to an official at Olympia that if he couldn't put on a better circus than he had seen there he'd eat his hat. "You'd better start chewing your hat right now," smiled the official. But Bertram Mills had the last laugh—and he didn't have to eat his hat!

Volcanic Steam for Industry—(*Cont. from page 589*)

offer a reliable and apparently inexhaustible source of chemicals and power. They also offer another benefit—free central heating for the men and women who live near them. In Iceland, volcanic steam is being used for heating purposes on a large scale, and hot water mains lie next to those carrying cold water under the streets of Reykjavik. The water that splutters from the taps of this city of 55,000 people has a temperature only nine degrees below boiling, and the supply is inexhaustible. In fact, it is not too much to say that the molten core of the earth may one day compete with the atom as the main source of heat and power for its inhabitants.

On the Footplate—(*Continued from page 582*)

tunnel. Acceleration was gentle after this, but we were soon moving nicely again through Hemel Hempsted, then Apsley, where a warning hoot was again necessary owing to the presence of permanent way men on the down line.

Down the hill we sailed through Watford Tunnel to the Junction and round the lofty curve to Bushey. We took full advantage of the fast running stretch that followed with a good road through Willesden Junction, Kensal Green tunnel and Queen's Park, where between the lineside walls the music from our side rods and big ends echoed and re-echoed. Then we came to Kilburn No. 1 box, where the regulator was shut. So we drifted through Primrose Hill tunnel, past the maze of interconnecting and burrowing lines that resulted from the Camden widening works that seemed to go on for so long years ago.

Would we make Euston without a check? Yes, we did, slipping gently down Camden bank and right in, to come to rest alongside No. 1 platform at barely 1.40 p.m. We had easily made up the time lost north of Rugby and were over five minutes early, after a most satisfying and enjoyable run, performed without fuss on the part of the engine or the crew. Soon the guard came along. "*You weren't pushing very hard today, Arthur,*" driver Harry said to him. "*No,*" was the reply, "*I didn't need to.*" Which was in its way a tribute to the manner in which "*O-Eight*" had performed under keen and capable management.

New Meccano Models—(*Continued from page 597*)

holes and bolting them together. The handlebars are Fishplates attached to the top end of the strip 3.

An Angle Bracket is bolted to the strip 3, and is attached loosely by a bolt fitted with two nuts to the curved 5½" Strip of the Scooter frame. In the same way the rear end of the Trunnion 2 also is connected loosely to the lower 5½" Strip of the frame.

Parts required to build the Scooter: 2 of No. 2; 2 of No. 5; 2 of No. 10; 2 of No. 12; 2 of No. 22; 12 of No. 37a; 10 of No. 37b; 1 of No. 38; 2 of No. 111c; 2 of No. 126.

SOLUTIONS TO PUZZLES FOR BEGINNERS

When you have recovered from your astonishment on looking at the flower pot in Fig. 1, you will get the word square and word diamond shown below quite easily. Any alternatives?

GOAT
ONCE
ACTS
TEST

L
WOO
LORDS
ODD
S

Fig. 2 is liable to produce dizziness. Those who survive the attempt should find 58 S's. and 113 L's.

The successive words in the ladder of Fig. 3 are TIME, DIME, DOME, DOLE, DOLL, TOLL, TILL, TILE and TIME.

In the fourth puzzle Sam divided the final figure by two, and subtracted five.

The answer to the Riddle-me-Ree is GOLLIWOG.

The odd one out in Fig. 4 is THRUSH, the only bird represented. The trios are

MARGARINE,	BUTTER	and LARD;
GOAT,	DONKEY	and HORSE;
BEECH,	HAWTHORN	and SYCAMORE;
GIRL,	BOY	and MAN;
ROSE,	LUPIN	and PANSY;
POTATO,	CARROT	and TURNIP;
APPLE,	ORANGE	and PEAR; and
CARRIAGE,	CYCLE	and SCOOTER.

Names of places in the British Isles? If you know your geography you will find these to be FALMOUTH, BRIGHTON, SKEGNESS, DEWSBURY, SOUTHEND, ROCHDALE, SHANKLIN and BICESTER, which yield FRESH AIR as the something we love.

The number of tracks shown in Fig. 6 is five.

It is rather astonishing how the letters of the alphabet, inserted in the correct places, make sense out of the jumbles of our next puzzle. Here are the answers:

cAn Betty Come anD sEe me iF i Go Home In JacK's car?
LeMoNade fOr suPper is Quite RefreShing.
TrUdi says you'Ve got a broWn foX in Your Zoo.

Now for the Coat of Arms in Fig. 7. This may not be correct from a Heraldic standpoint, but the artist thought he was designing a suitable Coat of Arms for the Oxford and Cambridge Boat Race.

Some of the letters in Fig. 8, representing Sam's continental tour, are a bit difficult, but when they are all detected they can be divided out to give BORDEAUX, BOULOGNE and MARSEILLES.

Lastly broken wheels, seen in Fig. 9, for the tongue twisters with which our puzzles ended provide only tests in rapid speaking. Did you get the right answer—16 different types of wheel?

Fireside Fun

Phil: (bragging) "I've got an uncle who plays the flute by ear."
Will: "That's nothing, my grandpa fiddles with his beard."

* * * *

There was a young lady named Perkins,
Who simply doted on Gherkins.
In spite of advice, she ate so much spice,
That she pickled her internal workin's.

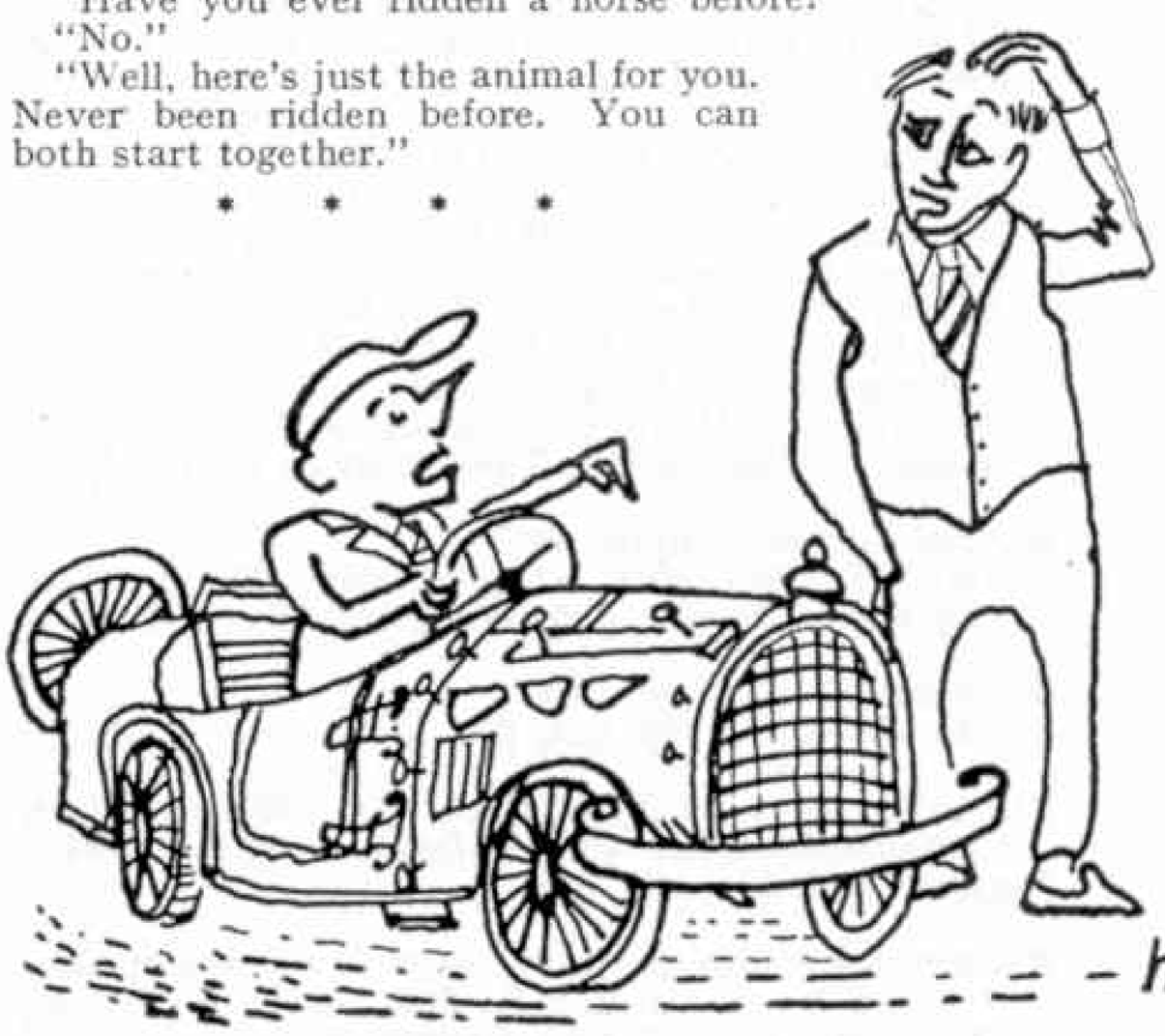
* * * *

A salesman held up in the Orkney Islands by a bad storm, wired his firm in Aberdeen, "Marooned by storm, wire instructions." Back came the reply, "Start summer holiday at once."

* * * *

"Sergeant, pick me out a nice, gentle horse."
"Have you ever ridden a horse before?"
"No."
"Well, here's just the animal for you. Never been ridden before. You can both start together."

* * * *



"I'm sure it made a supersonic bang, Dad."

* * * *

Nervous Passenger: "You *will* bring me down safely, won't you?"
Pilot: "I've never left anyone up there yet."

* * * *

An old lady was entering a shop when a boy suddenly charged out past her, ran across the pavement, and leaped into the gutter.
She hurried to him and asked, "Are you hurt?"
"No," he muttered, "but I'd sure like to know who moved my bicycle."

* * * *

"Which is the best way to prevent disease caused by biting insects?"
"Don't bite insects."

* * * *

1st Airman: "What's that ugly insignia on the side of that flying boat?"
2nd Airman: "Shhh! That's the commanding officer looking out of a porthole."

* * * *

A lady moved into a new hotel, and, before she went out to buy herself a radio, called up the reception desk. "Have you AC or DC current here?" she asked.
"One minute," said the clerk, and then returned to report, "I am sorry, madam, but neither is registered with us."

Mother: "Robert's teacher says he ought to have an encyclopædia."
Father: "Encyclopædia, my eye! let him walk to school as I did."

* * * *

Tom: "Who's that man with the funny face?"
Bill: "My brother."
Tom: "Sorry. Silly of me not to notice the resemblance."

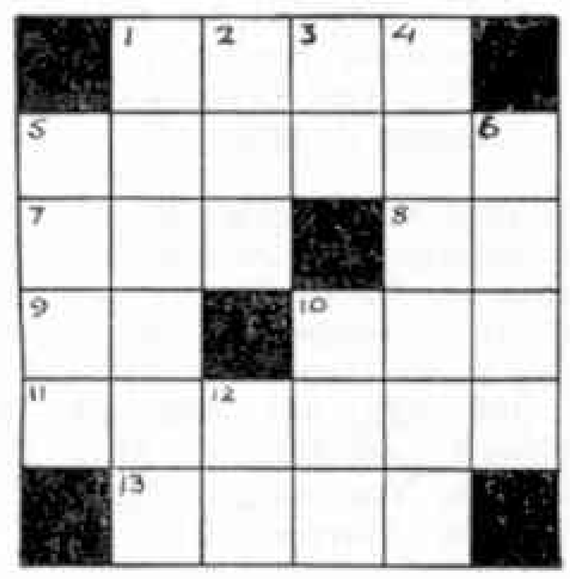
* * * *

BRAIN TEASERS

FIVE MINUTE CROSSWORD

Across

1. You may see this on a farm.
5. Will get you to the top.
7. Remove an aspirate and get a conjunction.
8. Sometimes used for "regarding".
9. After meals?
10. Eggs.
11. Impede.
13. Extremities.



Down

1. An outlaw.
2. Increase.
3. The first of 8 across and the second of 9 across.
4. Some people say they haven't got these!
5. Part of a ceiling.
6. Not at the front.
10. A lyrical poem.
12. Negative.

* * * *

WHAT IS IT?

In most popular universal stores the price of a certain article is 3d. each, 10 for 6d. and 100 for 9d. What is the article?

* * * *

FIND THE NAMES

1. A famous High Court Judge and a heroine in a sea catastrophe both bore the same surname. What was their name?

2. Sir Christopher Wren, a tilting yard, a famous ghost and a giant vine are connected with a famous building in the London area. What is the name of the building?

* * * *

SOLUTIONS TO LAST MONTH'S PUZZLES

Can You Name These Towns?

The names of the six towns to which the clues given point are:
1, Leeds; 2, Southsea; 3, Preston; 4, Newcastle; 5, Barnstaple; 6, Crewe.

* * * *

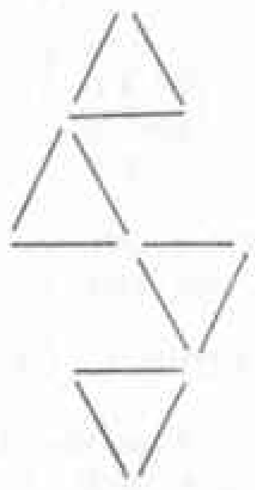
The Frog in the Well

Jimmy the Frog will take 18 days to reach the top of the well. On the eighteenth day he would reach the top and not slip back.

* * * *

Match Trick

A solution to the trick with 16 matches is shown in the sketch alongside. Have you found any other?



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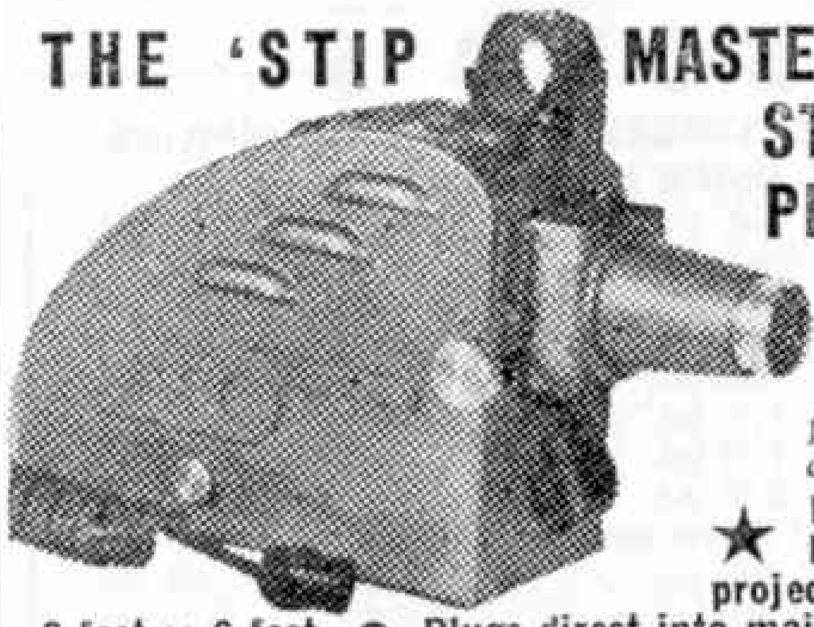

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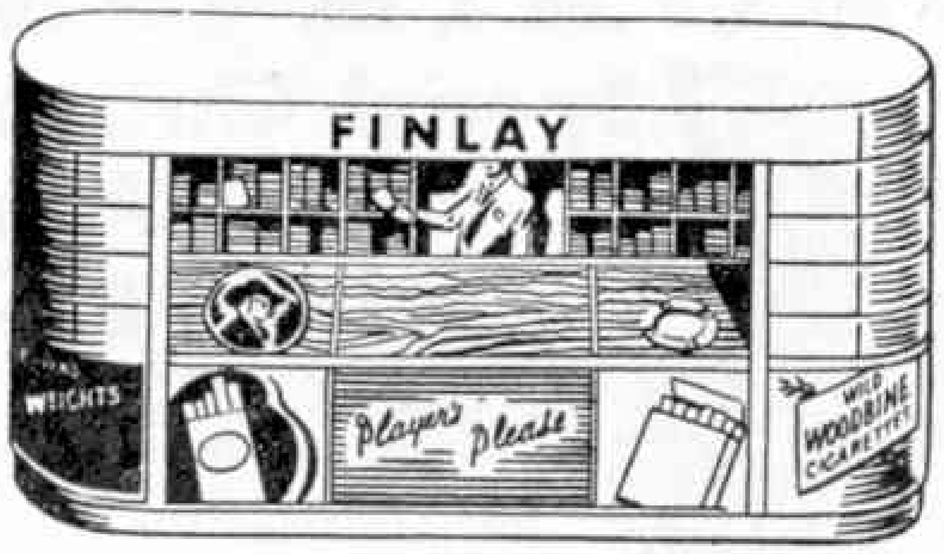

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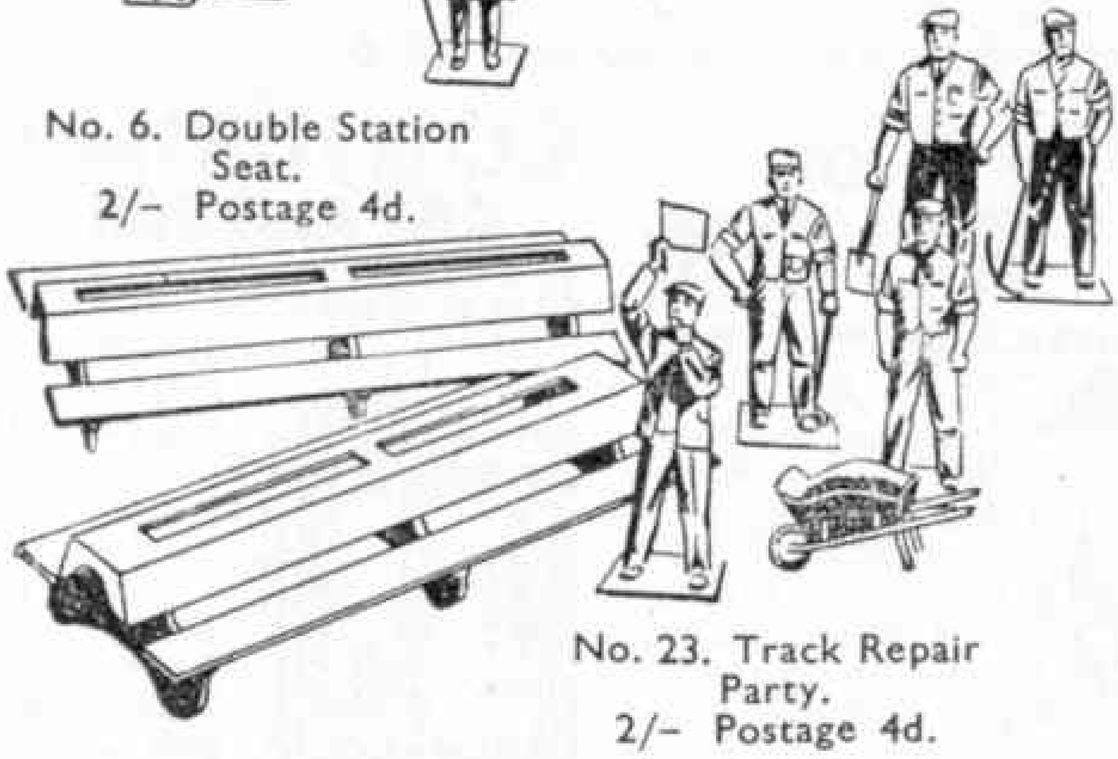

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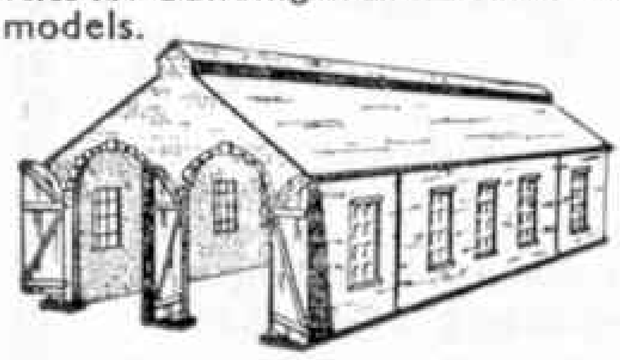

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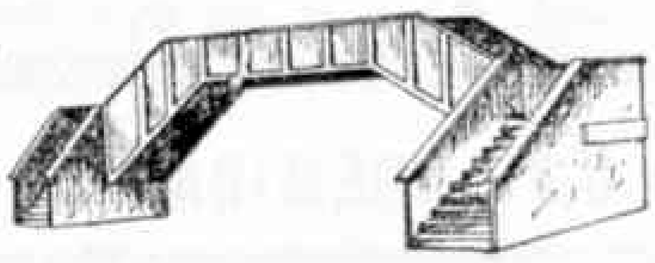

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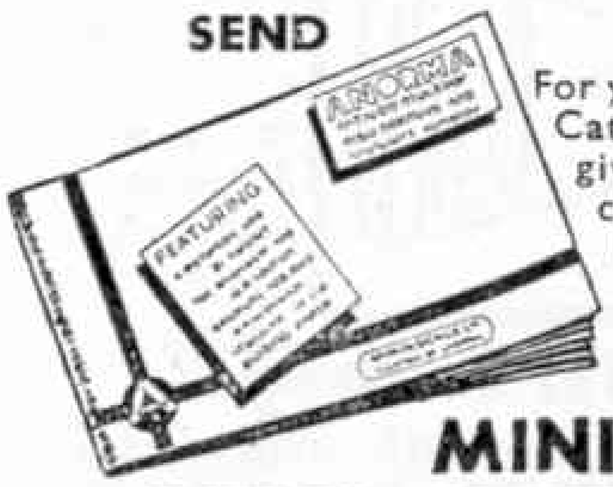

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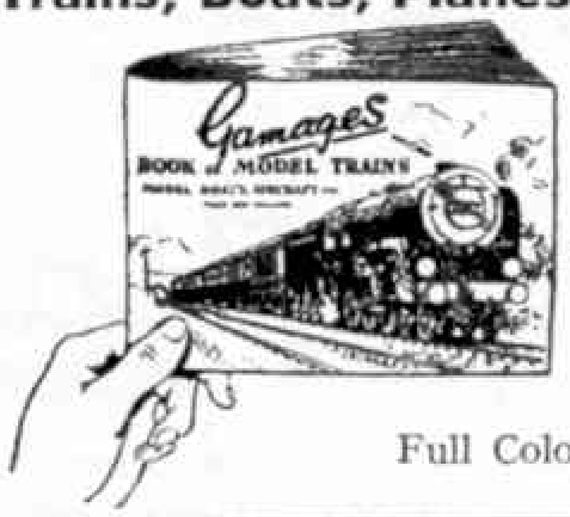

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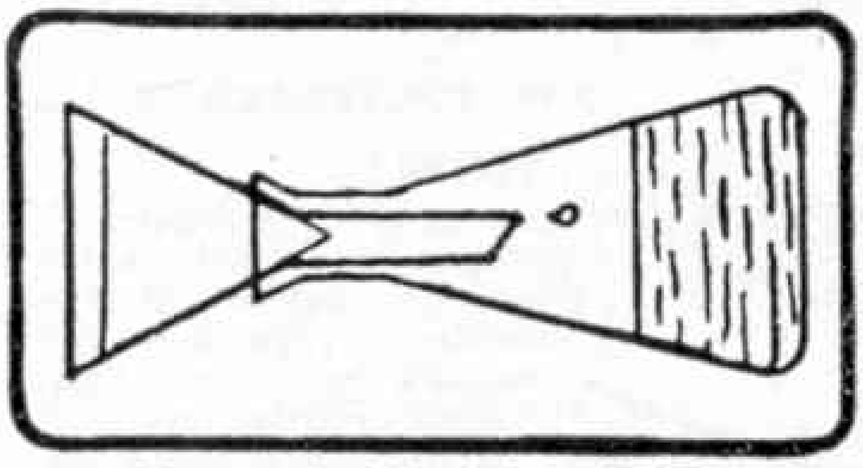

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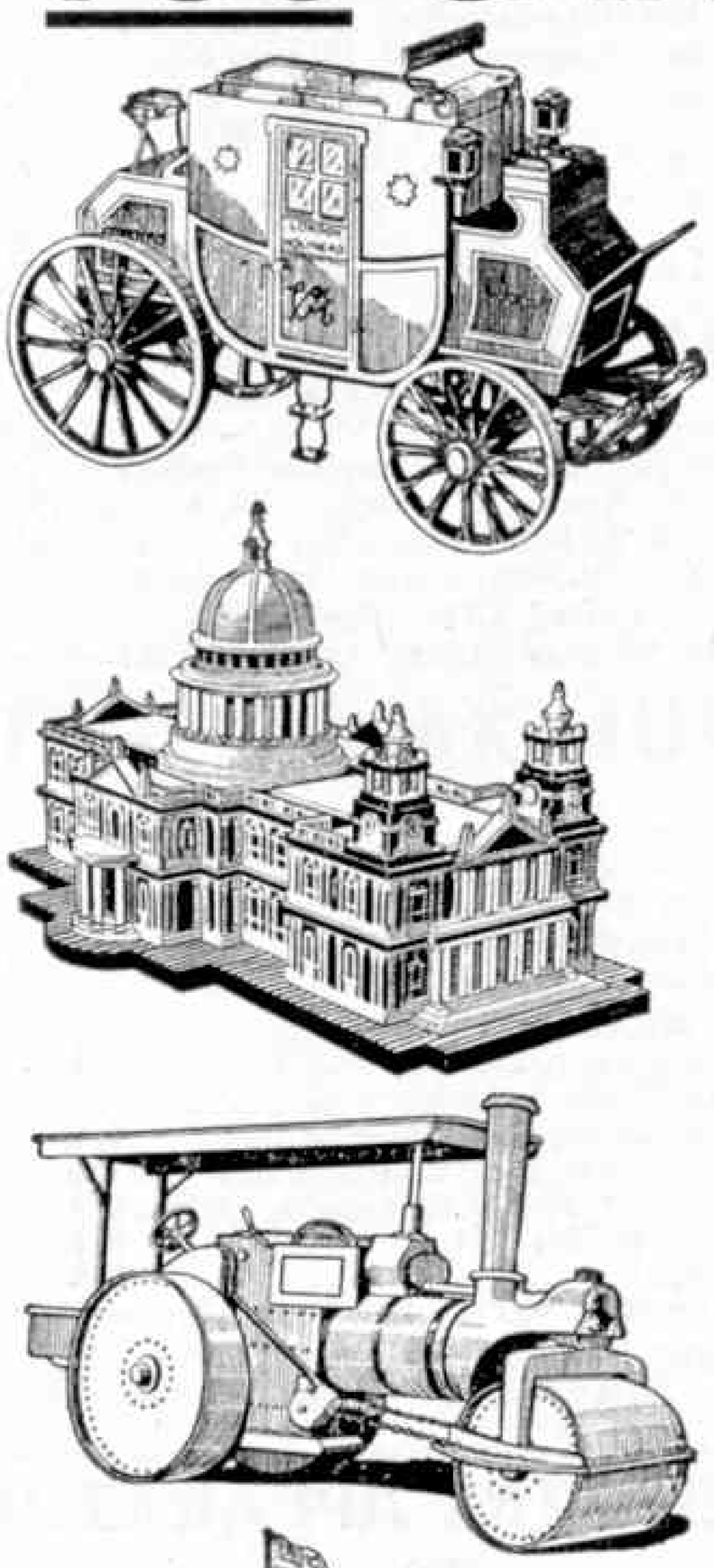

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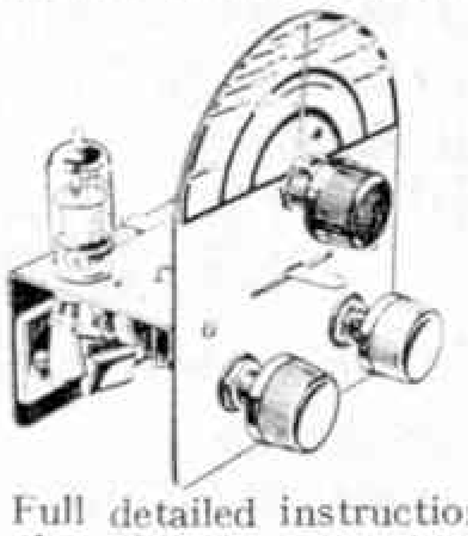

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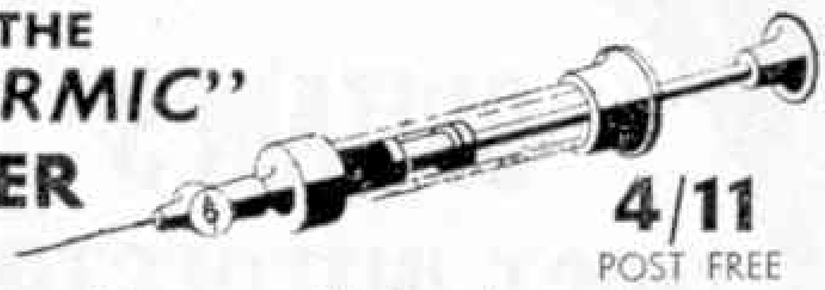

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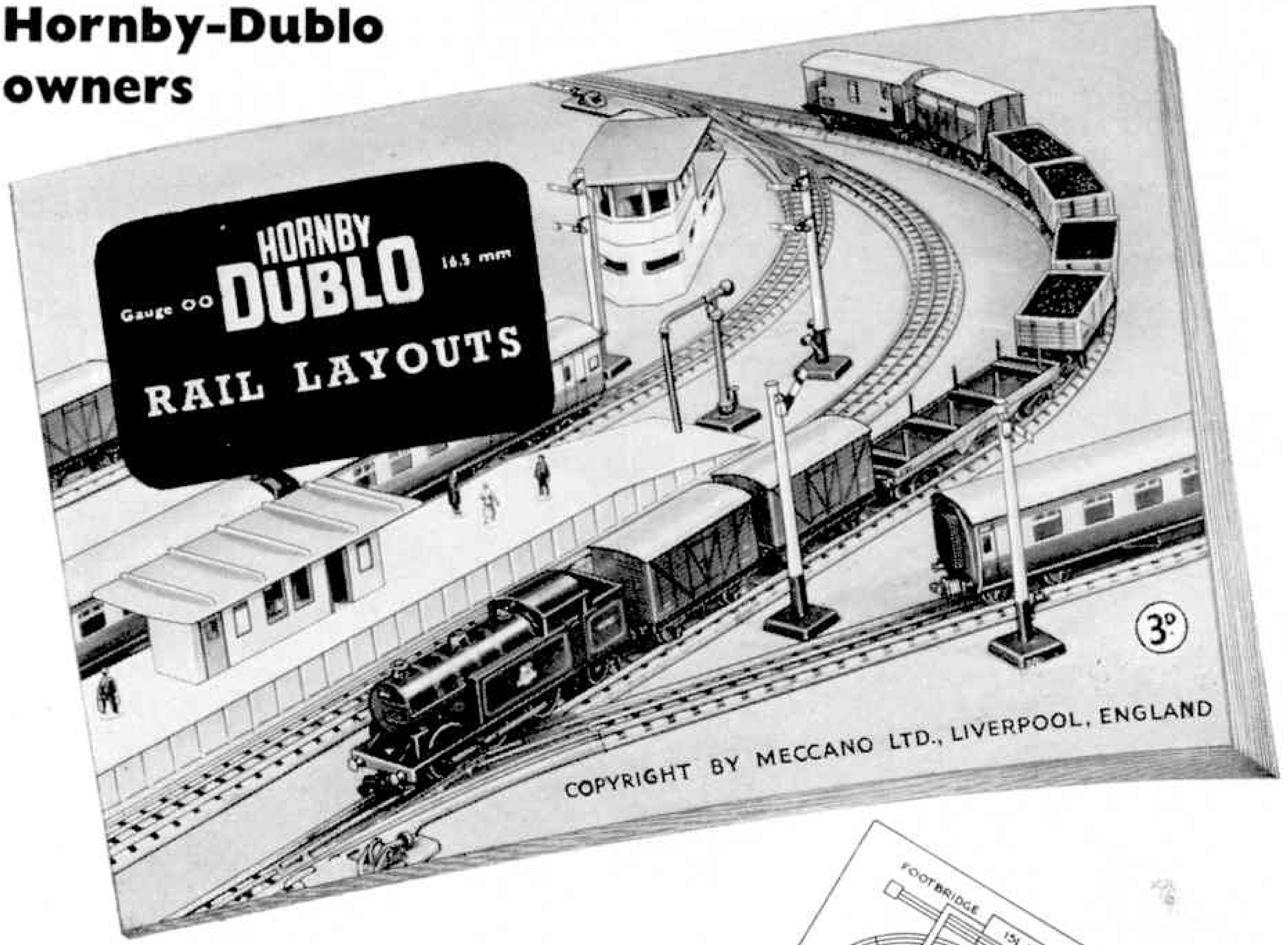

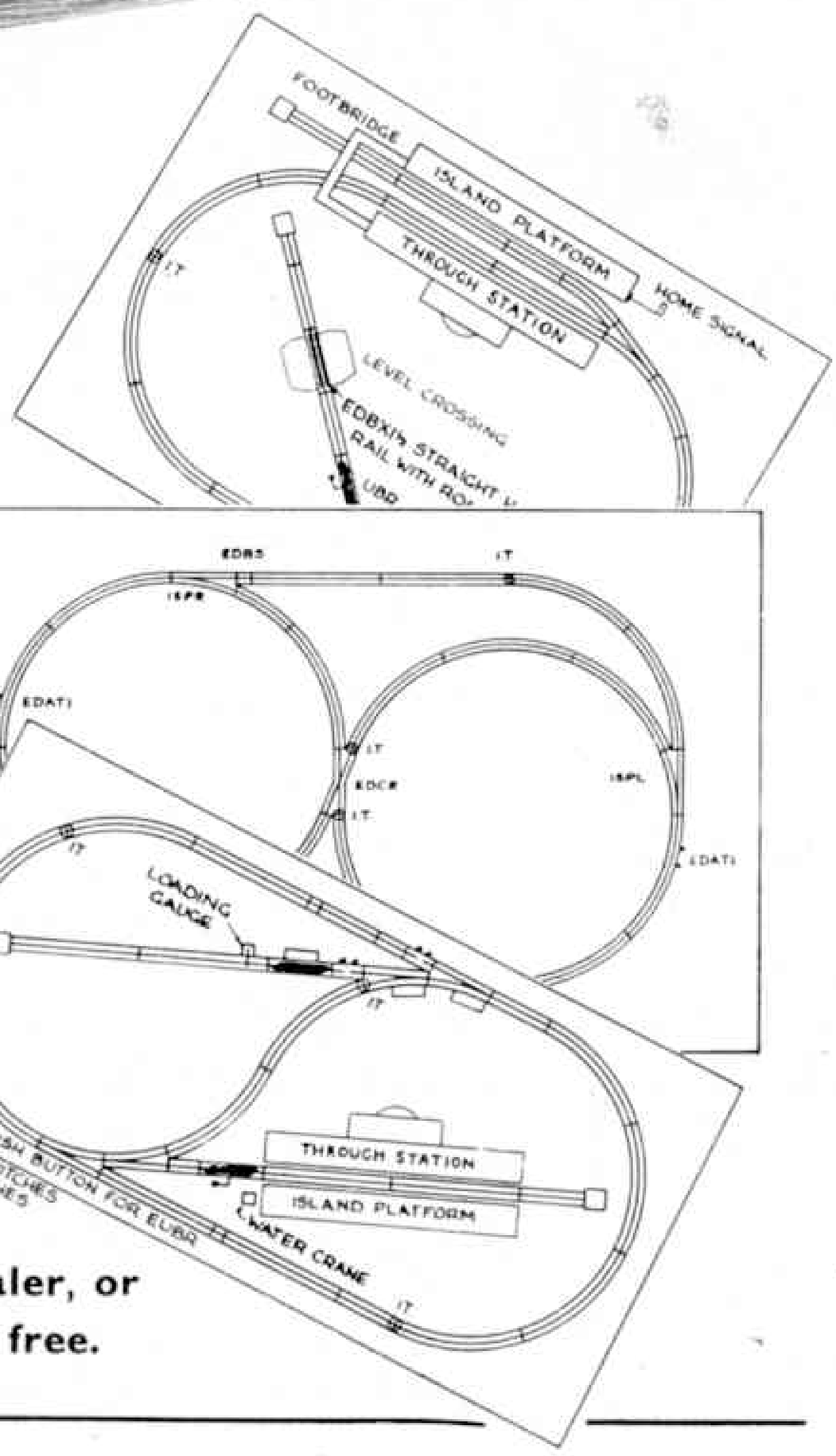

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